373

GAS JOURNAL

LIGHT ✦ HEAT ✦ POWER ✦ BYE-PRODUCTS

[Founded in 1849 as the "Journal of Gas Lighting."]

VOL. CXC. No. 3496.] LONDON, MAY 21. 1930. [82ND YEAR. PRICE 1s.

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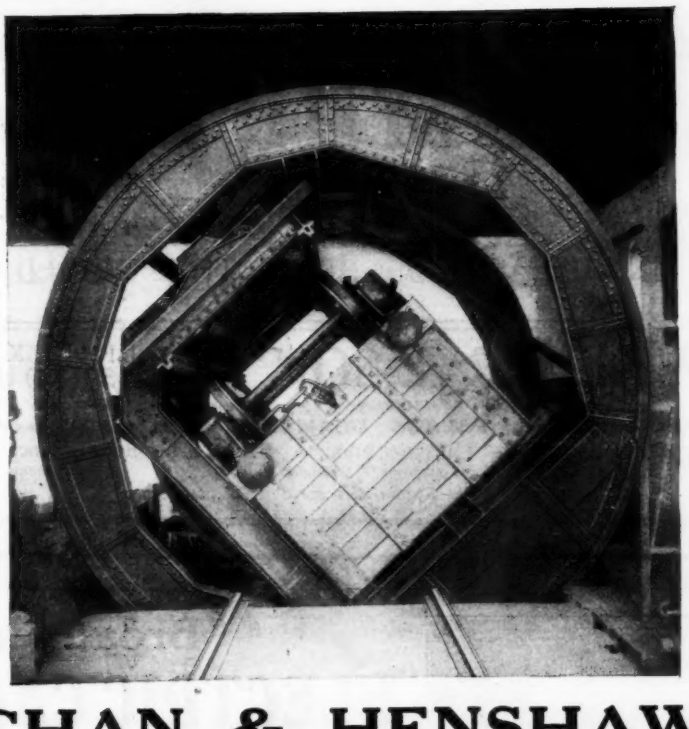
MECHANICAL HANDLING PLANT FOR ALL CLASSES OF MATERIAL.



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The only Gas Meter which will take three different coins without altering or adjusting the mechanism in any way.

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ONE CAPSTAN & A FEW FAIRLEADS WILL SERVE A WIDE AREA

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"Broadbent" ELECTRIC CAPSTANS

MANY GASWORKS WOULD FIND A CAPSTAN TO BE A GREAT SAVING IN TIME & LABOUR FOR HAULING COAL TRUCKS, ETC., INTO POSITION

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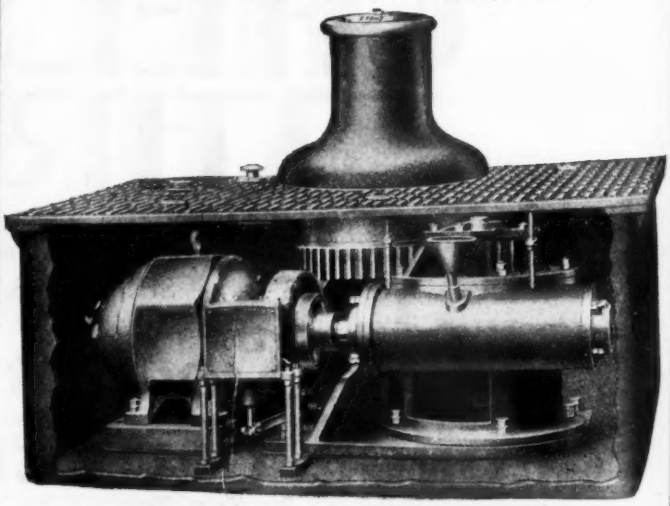
STANDARD SIZES TO SUIT ALL REQUIREMENTS



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Services and other small diameter pipe

A small trouble that is difficult to reach is more annoying and expensive than the failure of a major unit which is easier of access. The corrosion of services or other pipe of small diameter may prove as costly as the deterioration of street mains or the larger distribution lines.

Services, branching out from the street main, are usually laid under curbing, sidewalks, roads, walls, lawns and other forms of permanent construction where access for reconditioning or replacement is not only a considerable expense to the gas or water company, but a source of disturbance and annoyance to the consumer.

Services, moreover, are frequently laid in proximity to electric lines where stray currents lead to electrolysis. They are also laid in streets and alleys where ashes and refuse give rise to a more rapid rate of corrosion. As this small-sized pipe has thinner walls to start with, it is less able to withstand these corrosive attacks than in the case of larger, heavier-walled lines.

The protection of small pipe is as necessary as with any pipe of larger size. It is, therefore, desirable to use a protective coating that is, in every way, as dependable and permanent as that used for the most important mains. "Bitumastic" Enamel—"The Proven Protection for Pipe Lines"—has, during more than forty years, shown itself to be the most dependable and economical coating for pipe lines of every size. Part of its economy, however, depends on using the most efficient method of application, and, as methods vary with sizes of pipes, it was necessary to determine the most practical and economical way of coating pipe of small diameter.

While "Bitumastic" Enamel is usually spread on large sized pipe by means of a brush, canvas sling or special rolling rig, it has proved more economical and efficient to dip the small-sized pipe directly into the molten enamel. We have, therefore, developed a system of dipping utilizing plugs, tongs and easily constructed dipping troughs—which is used with great success by leading gas companies, and which has made the protection of small diameter pipe as simple and as inexpensive in application as it is beneficial and long-lasting in results.

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"PARKINSON" LAMPS

with Pre-Heated Metallised Burners and Mantles in Alignment

LISTS, PRICES, AND SAMPLE - - ON - - APPLICATION.

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INCORPORATED IN PARKINSON & COWAN (GAS METERS), LTD.,
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We make a specialty of all kinds of gas furnaces, viz.:

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SCIENTIFIC CONSTRUCTION
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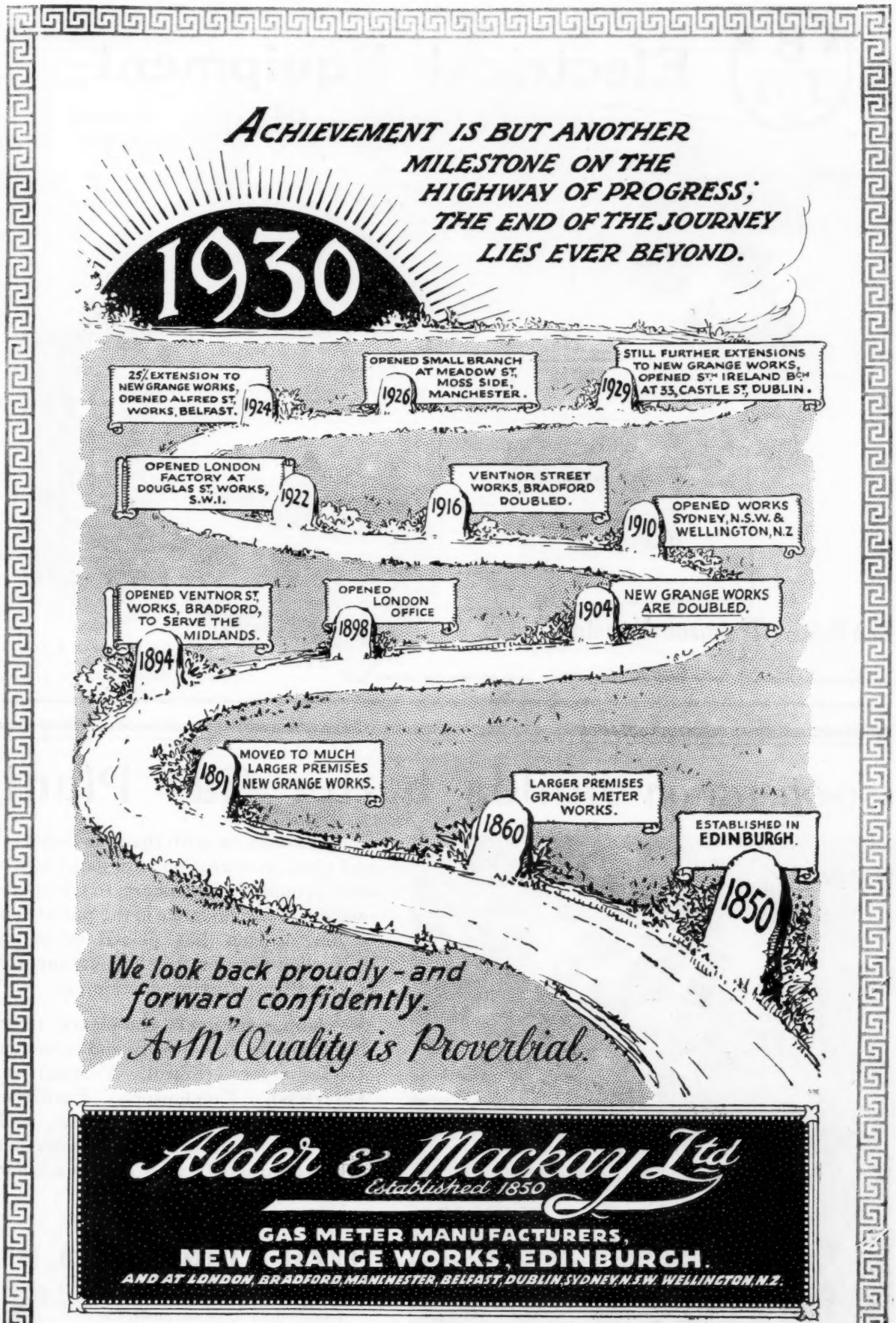
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25% EXTENSION TO NEW GRANGE WORKS, OPENED ALFRED ST. WORKS, BELFAST.
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We look back proudly - and forward confidently.
"A+M" Quality is Proverbial.
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Established 1850
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B.T.H. motors, in use on various forms of telpher plant for many years, have proved their exceptional suitability for this duty. They will run for years under all conditions and in exposed situations; rain, dust or fumes have no effect on their efficient working.

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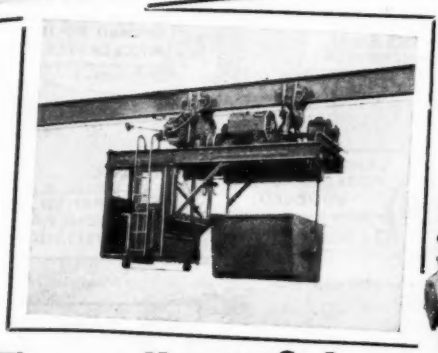

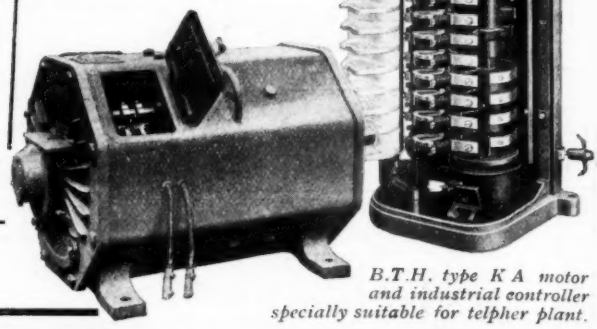

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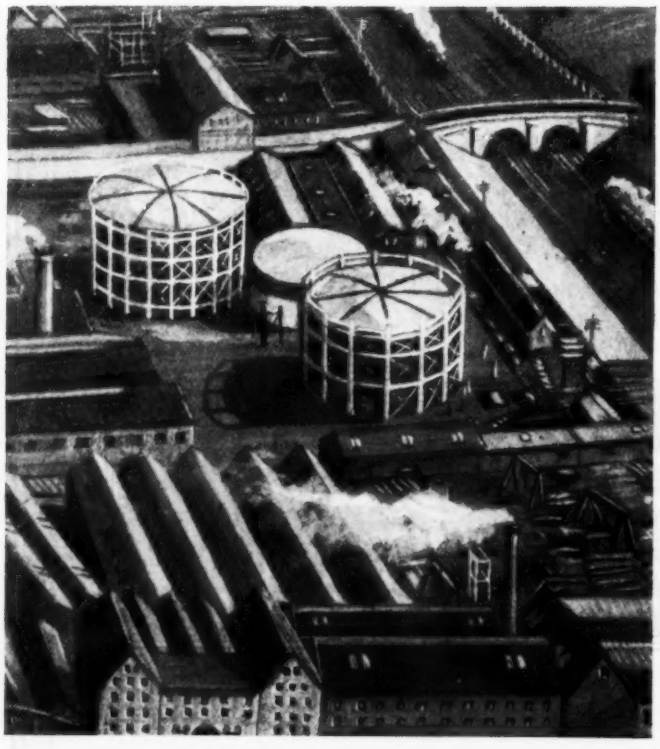

Long association with the Gas Industry and close co-operation with many of it's most prominent Engineers, to whom we owe much for guidance in the perfection of our designs, has placed us in an unrivalled position for the manufacture of Gas Plant of every description.

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Packed
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BLUE BOILER

The Boiler that meets with Gas Engineers' requirements.

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mean that a consumer will use gas before any other fuel. You can serve your consumers by installing an "Economic" whenever asked for a gas wash boiler. It is efficient, economical, and satisfies the most exacting requirements. Prices for any quantity will be gladly supplied to any gas undertaking.

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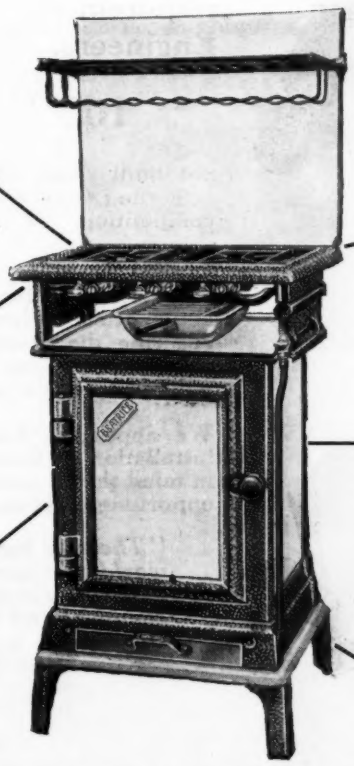
Patented Flue Outlet ensures EVEN Temperature in all parts of Oven.

Drilled Ring or Turret Burners in Hot Plate to order.

All Enamel Finish and absence of sharp corners or inaccessible recesses means EASY CLEANING.



Hot Plate Bars in Two Sections ONLY, and each one interchangeable. Cannot be replaced wrongly!

Oven lined with Cellular Asbestos Sheets giving the greatest insulation with proportionate ECONOMY in GAS consumption.

Oven Burners removed and replaced without difficulty!!

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FLYING OFFICER H. R. D. WAGHORN IN SUPERMARINE ROLLS-ROYCE S.6. WINNER OF THE SCHNEIDER TROPHY CONTEST, 1929.

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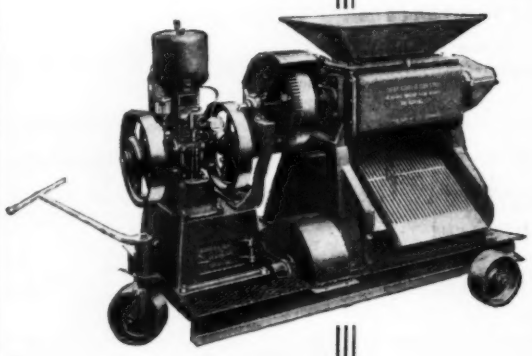
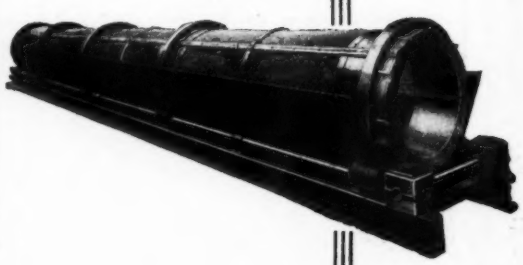


Cort's Coke Cutting and Grading Plant is the outcome of long experience in supplying the requirements of discriminating Engineers. It is

100 °/o VALUE,

not built down to a price, but designed rather to create a standard of quality above competition.

Special attention has been given to the countering of the abrasive and corrosive action of coke wherever it is in contact; thus ensuring the maximum of service at the minimum of Cost for upkeep over long uninterrupted periods.



We appeal to Engineers considering the installation of Coke Handling Plant to bear in mind the foregoing points—and it may be opportune to quote John Ruskin :—

"There is hardly anything in the world that some man cannot make a little worse and sell a little cheaper, and the people who consider price only are this man's lawful prey."

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URASTONE was designed especially for one of the world's largest gas undertakings. They found the uncertainties of metal flues restricted development. Corrosion, drip, bad draught, and frequent repairs left consumers dissatisfied with gas service.

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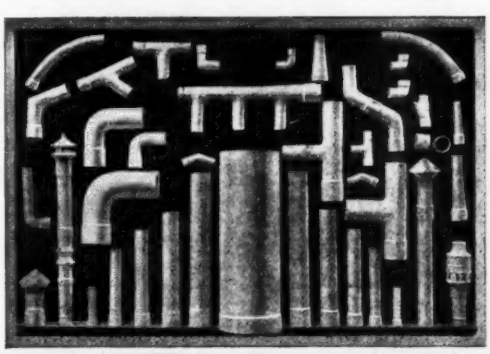
Please write for list of URASTONE incorrosible COWLS, FLUES, and FITTINGS, or let us know your special needs.



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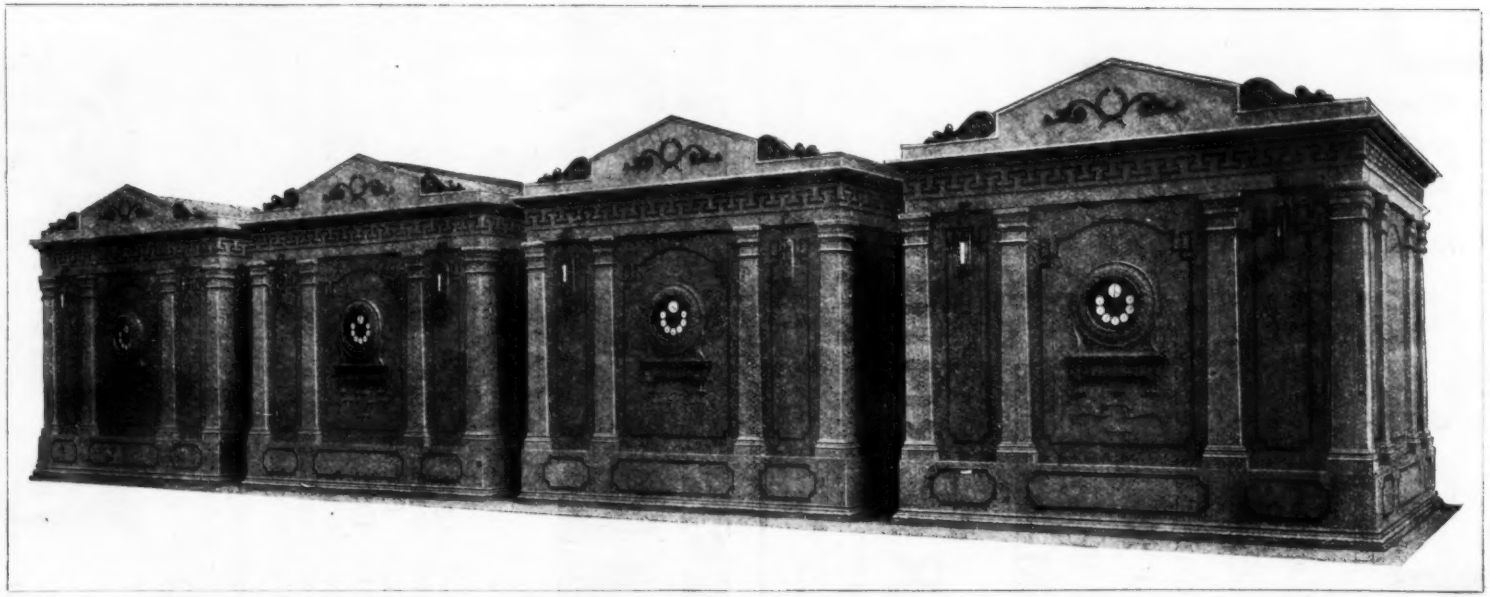

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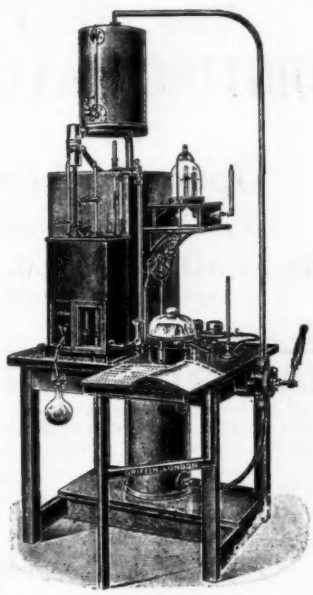

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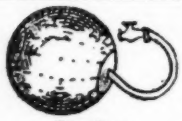
Impervious to Main Liquor and Climatic Influences.

Gas Bags for Repairing Mains.



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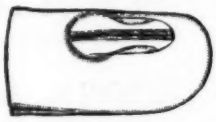
Hose, Tubing, and Sheet of Every Description.

Wading and Well Dresses.



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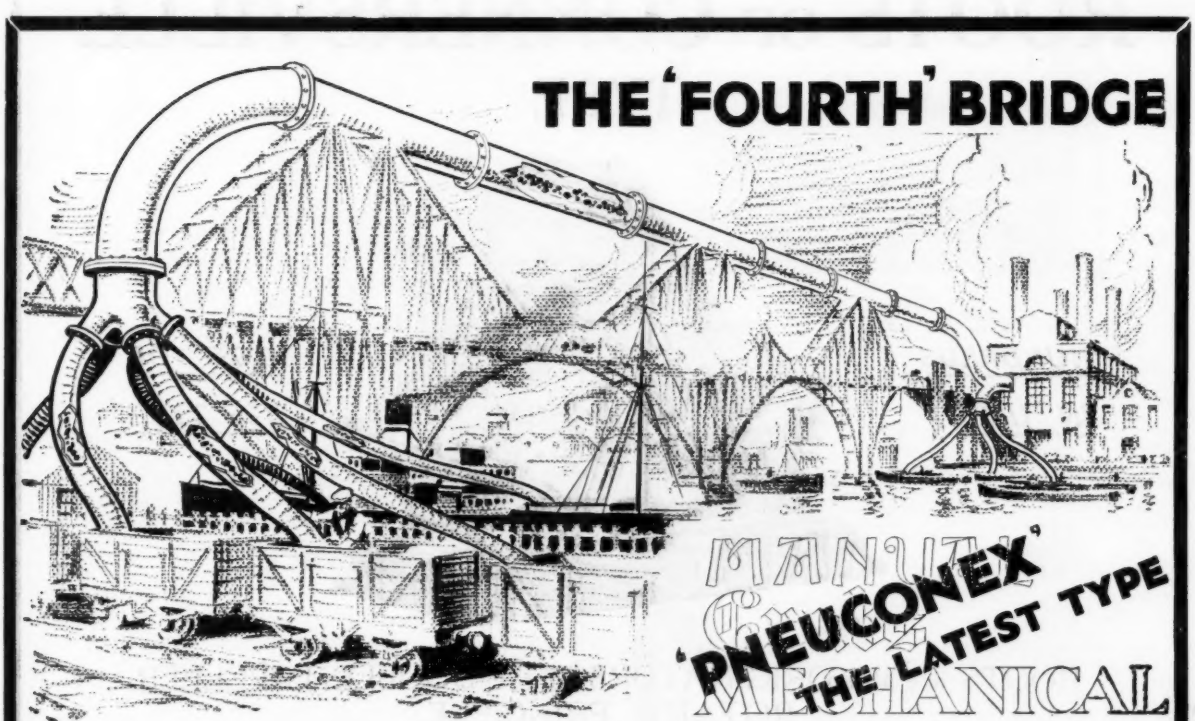

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OF THE

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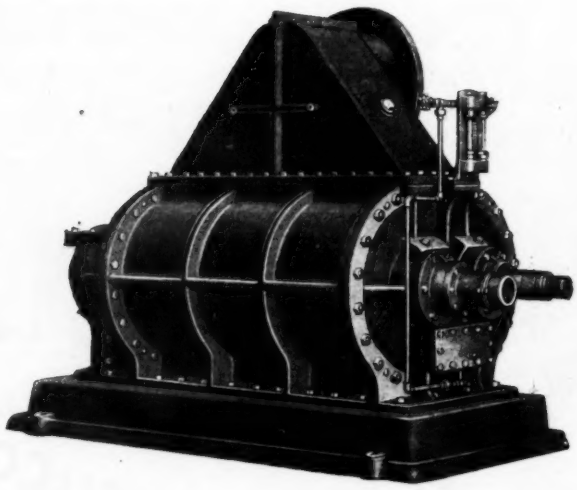

BEST OF ITS TYPE

ROOTS are the ORIGINATORS of the DOUBLE IMPELLER ROTARY PRINCIPLE.

METERS and BLOWERS can be seen and tested at the Works of—

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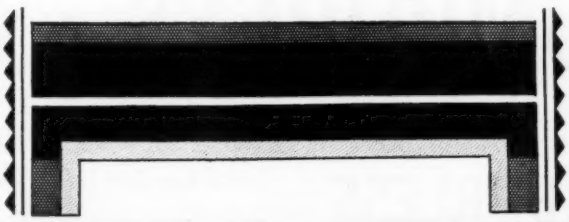

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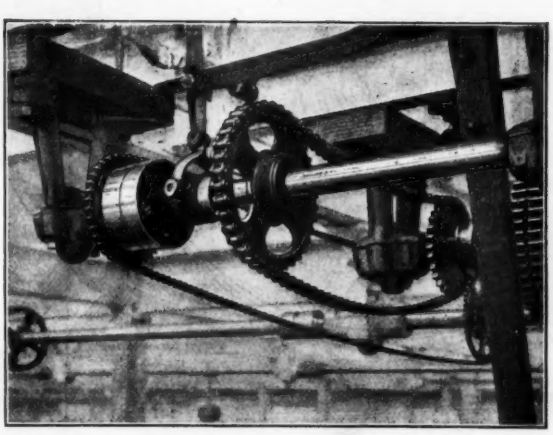

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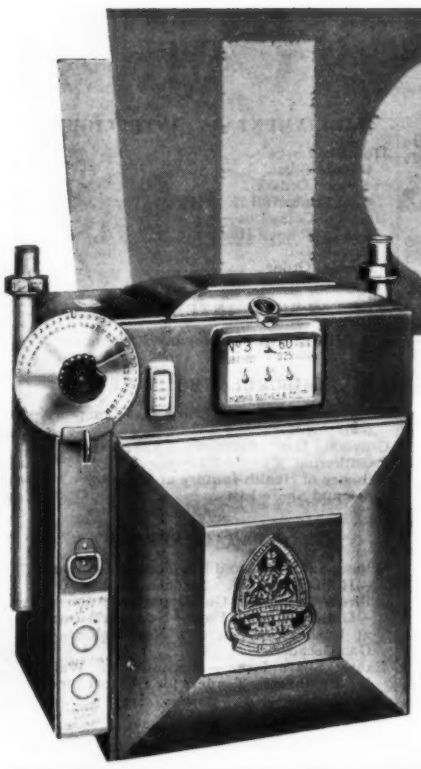

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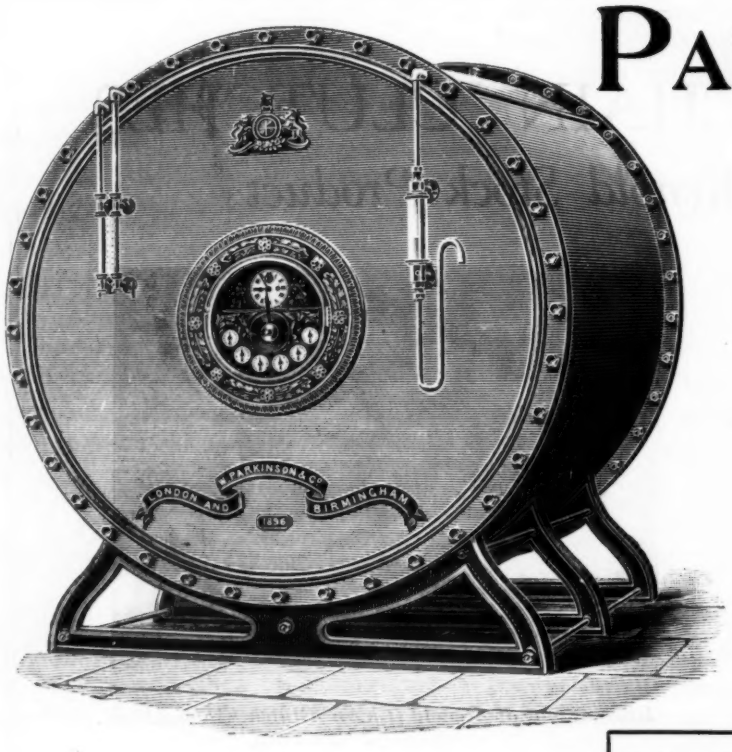

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VOL. CXC. No. 3496.] WEDNESDAY, MAY 21, 1930. [82ND YEAR.

Editorial Notes.

Unemployment Grants—Capital or Taxable Income?

FROM time to time we have commented in these columns on the assistance afforded to local authorities and public utility undertakings by the Unemployment Grants Committee, which was initiated by the Government some years ago for the promotion of works by public authorities for the relief of unemployment. The terms on which the Committee offered assistance were periodical payments in the case of approved works proposed to be undertaken, to the extent of 50 p.ct. of the interest on loans raised to finance such expenditure for the duration of the loan, with a maximum of 15 years. The Seventh (Interim) Report of the Unemployment Grants (Viscount St. Davids') Committee, covering the period to June 30, 1928, stated that during the year 1927-28 137 applications had been received from public utility companies, of which 80 had been approved, involving amounts approved and competent for grants totalling £3,224,122 (of which gas undertakings would receive £1,606,592, or nearly one-half). It further stated that, from October, 1921, to June, 1928, gas undertakings had submitted approved schemes for loans totalling £2,137,108.

The underlying idea was to relieve unemployment by encouraging the carrying out of work which would otherwise not be proceeded with for some time; and although we were aware that considerable divergence of opinion existed as to whether the grants received by undertakings were liable to income-tax or were to be regarded as indirect payment to the debenture holders, we have inclined to the view that the former suggestion would be contrary both to the terms on which the grants were made and to the fundamental idea underlying them. We are not a little surprised to learn, therefore, that on April 30 the case of *Seaham Harbour Dock Company v. Crook* (*H.M. Inspector of Taxes*) was decided in favour of the Crown—especially as Mr. Justice Rowlatt expressed himself as feeling some difficulty in dismissing the appeal of the Docks Company from a decision of the local Commissioners. As this case should, *prima facie*, apply to gas undertakings in similar circumstances, it may be appropriate to consider the points advanced, for unless it is taken from the King's Bench Division to the Court of Appeal the decision will decidedly strengthen the present attitude of the Board of Inland Revenue in general, and of certain Inspectors of Taxes in particular.

Dock undertakings were, prior to April 5, 1927, in common with gas and other public utility undertakings, assessed under No. III. to Schedule A of the Income Tax Act, 1918, and have subsequently been assessed under Case I. of Schedule D; and the present case affected two assessments made under either of the above Schedules, but no point of differentiation was made. As a result of the Seaham Harbour Dock Act, 1923, the work of extending the docks was proceeded with at an estimated cost of £152,000, which was raised by the issue of debenture stock and loans. Subsequently the Unemployment Grants Committee approved the scheme and sanctioned a periodical grant equivalent to one-half of the interest (not exceeding 5½ p.ct.) of loans for approved expenditure; and varying amounts were, in fact, received by the Company in 1924 to 1928 inclusive, and credited to the revenue account.

The arguments advanced in support of the Company's contention that the amounts received in this way were not liable to income-tax included, besides the fact that although the grant was not specifically made for the purpose of meeting the interest payments, but expressly in respect of the cost of construction—*i.e.*, capital expenditure—the point that the Company was not trading or carrying on a business to render their income assessable under the Income Tax Acts.

The Crown relied, *inter alia*, on the fact that the Commissioners had found that it was an annually recurring receipt to meet annually recurring expenditure, and that the decision must follow the decided case of *Pretoria-Pietersburg Railway Company, Ltd., v. Elwood* (1908), in which it was held that a sum, paid by the British Government under the terms of an agreement for the expropriation of a railway constructed in South Africa, by which all arrears of interest were paid, was to be regarded as the gross revenue of the Company earned from the time the business of the undertaking ceased, and therefore, taxable. In this connection, it is interesting to note that a similar decision was given in the Corporation Profits Tax case of *Madras and Southern Mahratta Railway Company, Ltd., v. Inland Revenue* (1926), when the appellants' contention (that the guaranteed interest paid by the Secretary of State in Council of India did not become the property of the Company, and was not available for any purpose other than distribution among the stockholders) was rebutted by the Crown on the ground that there was no obligation on the Company to distribute the guaranteed interest, which was, in effect, payment in advance of the Company's share of trading profits. Although this point did not influence the judgment in favour of the Company in the 1926 case, it would be useful to know the effect it would have had on the present (Seaham) case. We await further developments with interest, as any additional tax burden on industry is to be deplored, and industry generally will, it is suggested, in future ponder long before proceeding with any plans at the behest of the Government which may involve a grant with one hand and a demand for additional tax with the other.

No Hands Wanted.

Our industry has shown in practical and unmistakable fashion that it does not regard its workers as mere "hands." It believes, and acts on the belief, that the worker has a mental as well as a physical being. Through co-partnership, it cares for both mental and physical; "hands" simply do not exist as far as the industry is concerned. The idea of partnership is over a hundred years old, but thorough-going co-partnership as our industry knows it has a history of little over thirty years, the pioneer of the movement being, of course, Sir George Livesey, who sowed the seed of peace and contentment throughout the realm of gas manufacture and supply. It must at once be admitted that the gas industry is particularly suited to the operation of co-partnership; it has had a comparatively easy task in putting co-partnership principles into practice, and nearly every other industry in the land is faced in this respect with far more difficulties. But the fact remains that every industry is in very real need of the spirit of co-partnership.

It is this spirit of co-partnership which forms the basis of Lord Cecil's statesmanlike address before the Society of British Gas Industries, which is published on later pages of this issue of the "Journal." The address is a splendid exposition of the virtue of joint effort; and Lord Cecil looks to the principle of co-partnership to afford a solution to general industrial troubles in this country. Labour difficulties arise chiefly because there exists, in spite of round table talks, and during negotiations, the rooted antagonism between employer and employed. Time after time agreement is impossible because employer and employed discuss affairs in the light that the interests of employer and workmen are intrinsically divergent. Only by destroying this undercurrent of battle can lasting progress be made; and the way to effect this progress is to cultivate the co-partnership spirit.

Further Reasons for Co-operation.

Once again we are confronted with the problem of what is going to happen to the very small gas undertakings when electric cables thread the hedgerows, as they certainly will in the near future. The problem was re-raised by Mr. C. R. Fowler, of Leiston, Engineer and Manager of a 15-million undertaking, last Friday before the Eastern Counties Gas Managers' Association; and it cannot be said that he is addicted to undue optimism. He thinks that, unless early steps are taken to "restrain the activities of our opponents," the coming electrical competition will threaten the very existence of some of the small works. Now there is something very significant about Mr. Fowler's paper, which is published in later pages; it implies that some of the small undertakings are still waiting for the presence of electricity to act as a catalyst to their activities, which is all very sad indeed, since the need for action has been emphasized times without number during the past five years. What, it may well be asked, have these undertakings done in the meantime to blunt the edge of certain competition? Have they exploited to the best of their ability the resources which are theirs to command—the "N.G.C.," the "B.C.G.A.," for example? Have they shown great readiness to enter into negotiation with neighbouring concerns where this is at all possible? Have they exhibited a charm of manner, coupled with service in practice, to their consumers?

We are not at all willing to believe that the plight of the small undertaking which for years has been aware of the coming fight with electricity in its midst is as bad as Mr. Fowler paints it; equally, we are quite willing to believe that the plight of the small concern which has been content to let sleeping dogs lie—which dogs, by the way, were by no means asleep—may, at any rate temporarily, be distressing. The solution to the difficulties will be found; gas and electricity can live together. And the speed with which this solution is discovered will depend almost entirely on the complete abandonment of the cramping idea that a gas undertaking is a pleasant compartment which, so to speak, need have no truck with the rest of the gas-industry train.

Not very long ago we were in a country district. How is it, someone asked, that ever since it was known that electricity is about to be laid to this village the gas service has improved beyond recognition? It is not necessary for us to recount our attempt to answer this question. We hope we did our part; but we were really disheartened. For years that particular undertaking could have offered the "service beyond recognition." Had they done so, they would have benefited themselves considerably in their "monopoly," and they would have built a magnificent rampart against the invader. As it is, they are now feverishly piling stone upon stone, while the public they supply are removing the mortar by shafts of well-deserved scepticism.

There is, of course, no suggestion here that this is typical. The plight of the small undertaking is one of the first problems of the whole gas industry. Action must commence in the internal organization of each small concern, and must be encouraged and supported practically by the larger concerns. There must, in brief, be co-operative working, and this doubtless implies "small sacrifices" on the part of the small undertakings "to embrace such opportunities are are afforded by amalgamation or absorption, rather than face the severe financial difficulties in the near future." We quote Mr. Fowler; and we agree with him that there appears to be no better means of consolidating the position of the small concerns than by a union of resources. While this is being accomlished, however, there are many avenues to be explored; the possibilities of optional rates for gas constitute one example.

Mr. Fowler's contribution is certainly a timely one, but we suggest that he is too pessimistic, and that the well-worn expression "room for both" is applicable to both urban and rural districts. For several duties gas is definitely better, not least from the "bill-filling" point of view, than electricity; and the spending-power of a country village cannot compare with that of a large urban area. We hear, every now and then, that a large gas-works is merely a composite of smaller gas-works—that, within limits, a small undertaking which is up-to-date in its plant and its processes is as efficient from the gas-making point of view as are its larger neighbours. If this is true—and we think that it is true—then some form of co-operative working, whereby isolated plant may, if necessary, be employed to manufacture, as well as to distribute, gas, and at the same time may enjoy the financial backing and technical salesmanship resources of a larger concern, should provide healthy resistance to the oncoming tide of electricity.

'A House in Order.

The Harwich Undertaking is a 50-million concern. It does not come into the class to which Mr. Fowler directs his remarks, though it is included in his table of statistics. At any rate the output is comparatively small, and the recent progress of the Harwich Gas Company, outlined by Mr. A. Gregory, the Engineer, Manager, and Secretary, in his Presidential Address before the Eastern Counties Gas Managers' Association, is—particularly in view of Mr. Fowler's observations—of great interest as proving what can be done to meet electrical competition. This arrived in 1925. The local authorities, who "were bound to support their own scheme," decided that electricity should supplant gas for public lighting; and in other spheres electricity enjoyed a wave of popularity—people had it installed regardless of cost or of any other consideration. The Harwich Gas Company felt the blow, but by no means adopted the horizontal position. "Last year," said Mr. Gregory, "we had a slight increase in our output, and I am of opinion that we have now turned the corner and are on the up-grade again."

Now this recovery has been effected in the face of novelty trimmed with attractive tariffs; and it is important to consider for a moment how it has been effected. In the first place, the Harwich Company did not wait for the advent of electricity before erecting suitable show-

rooms in a prominent position or before putting into practice a good scheme for the periodical examination of consumers' appliances—which appliances they offered on hire-purchase and on simple-hire terms. Nor, after electricity had arrived, and when competition was at its keenest, did they hesitate, in spite of a temporarily decreased output of gas, to enlarge their trunk mains in order to give their consumers still better service. And then they tackled the coke sales problem. They advertised coke for central heating and for domestic hot water supply, and, having installed a coke cutting machine, they proceeded to supply a correct coke broken and graded to the proper size. As a result, they now dispose of their entire output at remunerative prices, whereas, previous to the installation of the coke cutting machine, half the output was thrown on the open market, and "had to be sold for what it would fetch." And to their own endeavours, the Company then added the resources of the British Commercial Gas Association—with excellent results. Last year, for example, with the aid of "B.C.G.A." literature, they secured orders for the heating of six halls.

Mr. Fowler's contribution and Mr. Gregory's address should, we suggest, be studied together. Electrical competition came to Harwich, but, finding the gas house in order, it did not conquer. This orderliness is the outcome of enterprise; and this enterprise, which is so evident in Mr. Gregory's address, is bound to render impotent future attempts of electricity to oust gas. In other words, it is the driving force which is capable of modifying practices to meet changed or changing conditions.

Oddments Such as Moving Mountains.

VERY few engineers responsible for gas supply have moving mountains in their areas, and very few undertakings have to cater for a scattered district, sixty square miles in area, administered by six Urban Councils. These and other unusual features add piquance to the Presidential Address which Mr. Barton Grainger, Engineer to the Rhymney and Aber Gas Company, will deliver to-day, before the Wales and Monmouthshire District Institution of Gas Engineers and Managers. The idea of a moving mountain is bad enough in itself, and the terror is surely not lessened by the fact that it is at Troedyrhiwfuwch. When this mountain gets lively, there is the possibility of a high-pressure steel main supplying Rhymney, Pontlottyn, and Abertysswg being carried away, and in view of this Mr. Barton Grainger keeps in hand at the Pontlottyn Works fifty yards of steel-flanged pipe, ready for linking-up with the existing main. As it is, the latter resembles a "garden hosepipe, and we can never be sure of finding it where it was originally laid." Also, every now and then the surface contour of the district suffers a land change. Throughout the district there is subsidence due to colliery workings, which does not decrease the difficulties of distribution. To lessen leakage, "Dresser" couplings and "Victaulic" joints are being given a searching trial.

It will be gathered that Mr. Grainger's address, which is published in this issue of the "JOURNAL," is of singular interest from the distribution point of view; it is also of interest from the viewpoint of manufacture, inasmuch as no coal gas whatever is made by the Rhymney and Aber Company. For nine years the requirements have been met by coke oven gas purchased from the Powell Duffryn Steam Coal Company. Hence, says Mr. Grainger, "I think the Company can claim to be pioneers, in spite of what my friend the President of the North of England Gas Managers' Association may think to the contrary." The gas is purified by the coke oven concern; and the opinion is expressed in the address that the use of coke oven gas for town supply under proper conditions is definitely a good proposition for the consumer, the shareholder, and the ratepayer, and that gas from bye-product plants will be utilized for public supplies in the future very much more than it is at present.

Personal.

PRESENTATION TO MR. C. F. CATT.

An interesting and pleasing little ceremony marked the May meeting of the Board of Directors of the Tunbridge Wells Gas Company. It took the form of the presentation by the Directors to Mr. C. F. Catt (Secretary) of a handsome half-hunter gold watch bearing his monogram, in recognition of no less than forty-five years of highly-valued service.

The Chairman (Mr. H. A. Beeching), in asking his acceptance of the gift, made reference to the valuable training which Mr. Catt received years ago at the hands of the then Secretary, Mr. John Read, and the efficient manner in which he had carried out the work for so long a period. Mr. Beeching made particular mention of the work involved in 1929, when the Company more than doubled its area by absorbing Mayfield, Rotherfield, and Crowborough, and referred to the growth of the Company and the consequent increasing responsibilities.

Mr. Catt, in expressing his great appreciation and thanks, spoke of the kindly feeling which had always existed between all connected with the Company.

It was in January, 1885, that Mr. Catt first went to the Tunbridge Wells Gas Company to take up a position under the late Mr. Read, and after fifteen years, when he became Secretary, Mr. Read presented him with a gold watch in appreciation of his services. That was in May, 1900, and Mr. Catt has, therefore, held his present position for thirty years.

Mr. SAMUEL GLOVER, whose condition, we are glad to learn, continues to show improvement, desires to make use of this column to thank the very many kind friends in the industry who have written or sent encouraging and sympathetic messages to him during his illness.

In a recent official communication to our office from the Portsmouth Gas Company, we notice the signature, T. CARMICHAEL, Engineer and General Manager. We should like to add our congratulations to those he will receive from his many friends in the Industry upon his appointment as General Manager.

For the excellent sketches of personalities at the "S.B.G.I." dinner last Friday we are indebted to Mr. HAROLD G. JUDD, C.B.E., Chairman of the Whessoe Foundry and Engineering Company, Ltd.

Forthcoming Engagements.

[*Secretaries of Gas and Kindred Organizations are asked to assist in making this diary of events as complete and useful as possible by sending the earliest intimation of all meetings.*]

May 23.—BRITISH COMMERCIAL GAS ASSOCIATION.—Lancashire District Conference, Morecambe.

May 24.—NORTH OF ENGLAND GAS MANAGERS' ASSOCIATION (AUXILIARY SECTION).—Half-yearly meeting at West Hartlepool.

May 27.—NATIONAL GAS COUNCIL.—Meeting of the Central Executive Board, at 12 noon, at the Incorporated Accountants' Hall, Victoria Embankment, W.C. 2.

May 27.—FEDERATION OF GAS EMPLOYERS.—Meeting of the Central Committee, 11 a.m., at the Incorporated Accountants' Hall, Victoria Embankment, W.C. 2.

May 27.—NATIONAL GAS COUNCIL.—Annual Meeting, Incorporated Accountants' Hall, Victoria Embankment, W.C. 2. 2.45 p.m.

May 27.—FEDERATION OF GAS EMPLOYERS.—Annual Meeting, Incorporated Accountants' Hall, Victoria Embankment, W.C. 2. 2.15 p.m.

May 30.—SOUTHERN ASSOCIATION OF GAS ENGINEERS AND MANAGERS (EASTERN DISTRICT).—County meeting at Maidstone, at the Royal Star Hotel, 12.30 p.m.

June 2-5.—INSTITUTION OF GAS ENGINEERS.—Annual Conference in Leeds.

June 14.—SCOTTISH JUNIOR GAS ASSOCIATION (EASTERN DISTRICT).—Annual Meeting and outing, Dunfermline.

June 21.—LONDON AND SOUTHERN DISTRICT JUNIOR GAS ASSOCIATION.—Summer visit.

July 11.—MANCHESTER AND DISTRICT INSTITUTION OF GAS ENGINEERS AND MANAGERS.—Visit to the Bolton Gas-Works, and paper by Mr. Lomax.

Aug. 19 and 20.—IRISH ASSOCIATION OF GAS MANAGERS.—Meeting at Tralee.

Sept. 11.—NORTH BRITISH ASSOCIATION OF GAS MANAGERS.—Annual Meeting at Aberdeen.

Oct. 27 to 29.—BRITISH COMMERCIAL GAS ASSOCIATION.—Annual Meeting at Hull and Bridlington.

Commercial and Industrial.

Stock Market Report.

[For Stock and Share List, see later page.]

Gas stocks and shares were in good demand last week, and the slow but sure upward trend of prices which has been apparent for some weeks past showed no signs of abatement. Lea Bridge 5 p.ct. ordinary topped the list with a rise of 12 points to 125½. On the basis of last year's dividend (8½ p.ct.), the yield at this price is £6 15s. 5d. p.ct., so that the increase is fully justified. Commercial ordinary received support, and the price hardened a point to 91½. There were inquiries at some of the Provincial Exchanges, and Newcastle consolidated gained 3d. to 10s. 3d. per £1 unit, and South Shields ½ to 106¾. Bristol 5 p.ct. maximum rose ½ to 88½, and Sheffield consolidated 1 to 104. Other increases were: Bournemouth 5 p.ct., ½ to 14½; Cambridge 5 p.ct. debenture, 2 points to 95½; and Gas Light 3 p.ct. debenture, 1 to 60½. The latter Company's £1 units recorded a slight set-back from 19s. 3d. to 19s. per £1 unit.

The Directors of the Imperial Continental Gas Association are issuing £300,000 new capital stock at £250 p.ct. to rank for dividend as from April 1 last *pari passu* with the stock already issued. Letters of rights (with renunciation forms) are being sent to existing stockholders entitling them to subscribe for £12 of the new stock for each £100 stock now held.

The report and accounts of the Cape Town and District Gas Light Company, Ltd., for 1929 have been received and show very satisfactory results. The balance at credit of revenue account is £22,665 (against £21,864); no change had been made in the interim dividend of 3 p.ct. paid on Dec. 1; but the Directors propose to increase the final dividend on the ordinary shares to 5 p.ct. (against 4 p.ct.), making a total distribution for the year of 8 p.ct. After allowing for this and the dividend on the preference shares and transfers to reserve, the carry-forward is £4859 (against £4206).

Coal Markets.

While there has been a slightly better feeling in some of the markets during the past week, the general situation is very far from satisfactory. Local factors have been of influence in some cases, such as the bunkering of boats for the opening of the Baltic trade, which has given something of a fillip to that section of the North-East Coast market. For some reason not so obvious, there has been a better tone in Durham coking sorts; the better qualities at all events have improved a few pence to 14s. f.o.b. Less satisfactory is the postponing of the 50,000-ton order for coking coals for the Oxelosund Gas-Works, for which tenders had been submitted recently. Gas coals are very quiet indeed, with prices nominally 16s. 6d. f.o.b. for Wear specials, 15s. 9d. best qualities, and 13s. 6d. to 13s. 9d. seconds. A sale, however, is reported of 14,000 tons of bests for Oslo at 15s. 3d. f.o.b. Tyne Dock or 14s. 9d. in the river. In every way forward trading is very difficult pending the bringing into action of the marketing schemes of the Coal Bill.

In Yorkshire there has been a reduction from 3s. to 2s. a ton in the export subsidy, so that quotations for export coal have had to be advanced slightly. Here, as elsewhere, business is very quiet, with a general dearth of either orders or inquiry.

Gas coke is reported as firm on all sides, at about 21s. 6d.

Trade Notes.

Ilkeston Instal Dehydration and Naphthalene Plant.

The Ilkeston Town Council, on the recommendation of Mr. Holt, the Gas Engineer, have decided to instal a combined glycerin dehydration and naphthalene extraction plant of Messrs. Kirkham, Hulett, & Chandler, Ltd.'s manufacture. This is the second plant of this type to be installed, and the whole plant is to be placed on the outlet of the holder.

"Dreadnought" Firebricks for New Zealand.

Messrs. General Refractories, Ltd., of Sheffield, have received an order from New Zealand for their new high alumina firebrick, the "Dreadnought," for use in connection with oil-fired furnaces. The production of these "Dreadnought" bricks opens out new avenues for British export trade, and proves that there is a market abroad for a really super-quality British-made firebrick.

Lubricating Oil Specifications.

No. 2 (Sixth Edition) of the Gargoyle Technical Series—Lubricating Oil Specifications—has been published by the Vacuum Oil Company, Ltd., of Caxton House, Westminster, S.W. 1. The object of this publication is to review the limitations inseparable from lubricating oil specifications. It attempts to make clear the significance and relative value of the technical tests applied to lubricating oil.

Practical Solutions to Manufacturing and Industrial Problems.

A folder recently issued by Messrs. James Keith & Blackman Company, Ltd., of 27 Farringdon Avenue, E.C. 4, has been produced in an endeavour to draw attention to several problems which, at some time or other, arise in various industries, and in the solution of which the firm claim to be pre-eminently qualified to assist by reason of their expert knowledge and experience. The Keith & Blackman Company have had 50 years' experience in the manufacture and application of fans for various purposes, and it is stated that many "Keith-Blackman" fans which were installed 20 to 30 years ago are still satisfactorily performing the duties for which they were designed.

Current Sales of Gas Products.

The London Market for Tar, Tar Products, and Sulphate.

London, *May* 19.

There are no changes to report in the prices of tar products, which are to-day as follows:

Creosote for export, 6d. to 6¼d. per gallon f.o.b.

Pitch, 47s. 6d. per ton f.o.b.

Pure toluole is 2s. 3d. to 2s. 4d. per gallon; 95/160 solvent naphtha, about 1s. 5d. per gallon; pure benzole, about 1s. 11d. per gallon; and pyridine bases, 3s. 9d. per gallon.

Tar Products in the Provinces.

May 19.

The average prices of gas-works products during the week were: Gas-works tar, 21s. to 26s. Pitch—East Coast, 46s. f.o.b. West Coast—Manchester, Liverpool, Clyde, 46s. f.o.b.*. Toluole, naked, North, 1s. 7¼d. to 1s. 8¼d. Coal-tar crude naphtha, in bulk, North, 9d. to 10d. Solvent naphtha, naked, North, 1s. 3d. to 1s. 3½d. Heavy naphtha, North, 1s. to 1s. 0½d. Creosote, in bulk, North, liquid and salty, 3½d. to 3¾d.; low gravity, 1¼d. to 1½d.; Scotland, 3½d. to 3⅝d. Heavy oils, in bulk, North, 5½d. to 6d. Carbolic acid, 60's, 2s. 4d. to 2s. 5d. prompt. Naphthalene, £12 to £14. Salts, £5 to £5 10s., bags included. Anthracene, "A" quality, 2½d. per minimum, 40 p.ct., purely nominal; "B" quality, unsaleable.

* It is proposed in future to quote all prices for pitch on the basis of f.o.b. In order to arrive at the f.a.s. value at any port, it will be necessary to deduct the loading costs and the tolls whatever they may be.

Tar Products in Scotland.

Glasgow, *May* 17.

There is little or no alteration to report in the position of this market. The output of road tar is gradually increasing, but trading in other products is on a restricted scale.

Pitch.—The production is at its lowest, and value is nominal at about 47s. 6d. per ton f.a.s. Glasgow for export. Makers are quoting about 47s. 6d. per ton *ex* works for home orders.

Tar is in slightly better call, and quotations are steady at 3¼d. to 3⅜d. per gallon filled into buyers' packages at works.

Creosote remains on the quiet side, with prices easy. B.E.S.A. specification is 3¼d. to 4d. per gallon; low gravity, 3d. to 3¼d. per gallon; neutral oil, 3d. to 3¼d. per gallon—all free on rails works.

Cresylic.—The demand is irregular, but values continue quite steady. Pale 97/99 p.ct. is 1s. 8⅜d. to 1s. 9¾d. per gallon; dark 97/99 p.ct., 1s. 7¼d. to 1s. 8¼d. per gallon; pale 99/100 p.ct., 1s. 11¼d. to 2s. 0¼d. per gallon—all f.o.r. works.

Crude Naphtha.—The production is increasing, and quotations are consequently lower at about 4¼d. to 4⅜d. per gallon *ex* makers' works.

Solvent naphtha has been in better demand, but quotations are unaltered; 90/160 grade is about 1s. 2½d. to 1s. 3½d. per gallon, and 90/190 grade is about 1s. to 1s. 1d. per gallon.

Motor benzole is scarce in this area, and prices are firm at about 1s. 6¼d. to 1s. 6⅜d. per gallon in bulk quantities *ex* works.

Pyridines.—90/140 grade is 4s. to 4s. 3d. per gallon; 90/160, 3s. to 3s. 3d. per gallon; 90/180, 2s. 3d. to 2s. 6d. per gallon; and 90/220 nominal, at 1s. to 1s. 6d. per gallon.

Benzole Prices.

The following are considered to be the market prices at the present time:

	s. d.	s. d.	
Crude benzole . . .	0 10	to 0 11	per gallon at works
Motor ,, . . .	1 5½	,, 1 6½	,, ,,
Pure ,, . . .	1 10	,, 1 11	,, ,, ,,

Contracts Open.

Coal.

The Directors of the Gloucester Gas Light Company invite tenders for the supply of gas coal. [See advert. on p. 450.]

The Newbury Corporation invite tenders for the supply of gas coal. [See advert. on p. 450.]

Pipes.

The Newton-in-Makerfield Urban District Council invite tenders for the supply of pipes, &c. [See advert. on p. 450.]

Valves.

The Newton-in-Makerfield Urban District Council invite tenders for the supply of valves, &c. [See advert. on p. 450.]

The Chesterfield Corporation have obtained sanction to borrow £9000 for gas mains and services.

The Rotherham Corporation Gas-Works Committee have received sanction to borrow £10,000 for mains and services, and £17,000 for fittings, cookers, meters, fires, &c.

In To-Day's "Journal."

Society of British Gas Industries.

A full report appears of the annual meeting of the Society held on Friday last, at which the Right Hon. Viscount Cecil of Chelwood delivered his Presidential Address. Lord Cecil advocates adoption of co-partnership principles to "minimize some of the more glaring evils from which we are at present suffering." The new President of the Society is Lord Eustace Percy.

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Midland Association at Bromsgrove.

On Thursday last the Association visited Bromsgrove, the headquarters of their President, Mr. A. Bird, who is Engineer, and a Director of the Bromsgrove Gas Company.

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Gas Engineers at Harwich.

The spring meeting of the Eastern Counties Gas Managers' Association was held at Harwich on Friday last, when inspection was made of the works of their President, Mr. A. Gregory, who is Engineer, Manager, and Secretary to the Harwich Gas Company.

* * * *

Presidential Address of Mr. Gregory.

In his Presidential Address before the Eastern Counties Gas Managers' Association, Mr. Gregory describes the history and progress of the Harwich Gas Company since it was created under a Deed of Settlement in 1854. The present carbonizing plant consists of seven settings of 10-ft. stop-ended horizontal retorts, five settings heated by semi-regenerator furnaces, and two by generator furnaces. Mr. Gregory deals at some length with electrical competition in Harwich, and gives some interesting particulars of the charges for electricity. By propaganda and advertising, states Mr. Gregory, they are now able to dispose of all their output of coke for domestic purposes, at remunerative prices, whereas previous to the installation of a coke cutting machine 50 p.ct. of their output was thrown on the open market and had to be sold for what it would fetch.

* * * *

Meeting Competition in Rural Areas.

As many towns and villages in the country can expect, in the near future, to receive supplies of electricity from the super-power stations of the larger towns, says Mr. C. R. Fowler, of Leiston, in a paper before the Eastern Counties Gas Managers' Association, it is well to consider what effect electricity may have upon small gas undertakings in urban and rural districts when current becomes available to consumers in their areas of supply. Up to the present, he states, many of the smaller works have not been disturbed by electrical competition, but when this is established the position of some will be very precarious indeed. Those responsible for the conduct of small works would be well advised not to wait until they are overwhelmed by adverse circumstances before reviewing their position.

Croydon Co-Partnership Gathering.

The annual co-partnership gathering of the Croydon Gas Company was held on Monday, May 12, at the North End Hall, Croydon—Mr. William Cash (Chairman of Directors) presiding. The presentation of the co-partnership scheme accounts for the past year showed the scheme to be in a very satisfactory position. Of particular interest was the presentation of long-service awards to three Directors (one of whom was Mr. Cash), the General Manager (Mr. W. J. Sandeman), and fifteen members of the staff, one of whom has recently been pensioned after 50 years' continuous service with the Company. A bonus at the rate of 7 p.ct. was announced for the year.

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Weymouth Company's Extended Area.

May 9 saw the inauguration of a gas supply to an outlying part of the Weymouth Consumers' Gas Company's area—namely, the parishes of Broadwey and Upwey. The official ceremony was performed by Mr. Mark C. Frowde, Chairman of Directors of the Weymouth Company. Details are given of the gasholder which has been erected, in connection with the extended supply, by Messrs. Willey & Co., Ltd., of Exeter. It is a single lift spiral-guided holder of 90,000 c.ft. capacity, while provision has been made for an additional lift to be added should the district develop sufficiently to justify it.

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In Our Legal Columns.

In the Chancery Division last week, before Mr. Justice Luxmoore, the Gas Light and Coke Company obtained an injunction restraining Mr. Gwladyr Browne Clements from carrying on business, either in Horseferry Road, Westminster, or elsewhere, under the name or style of the Metropolitan Gas Light and Stove Company, or any other style phonetically like that of the plaintiffs. Evidence showed that the defendant had been selling articles in such a manner as to lead to the belief that he represented or carried on a branch business of the plaintiff Company. Defendant was willing to change the name of his business to prevent any misconception, and he would cease to operate in Horseferry Road. The Gas Light and Coke Company did not ask for costs or damages.

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Coke Oven Installation for Town Gas Supply.

In a paper before the Manchester Geological and Mining Society on May 13, Mr. D. V. Hollingworth, F.I.C., M.I.Chem.E., Manager of the Lancashire Foundry Coke Company, Ltd., gave a most interesting description of the design, construction, and operation of the modern coke oven and bye-product recovery plant at Altham. To give an idea of the sort of plant in operation at the end of the war, Mr. Hollingworth briefly describes the ovens at Birchenwood Collieries, which were erected in the year 1912, and which at the time represented the very latest German practice. The author goes on to describe in detail how the various improvements which have been embodied in the most recent Still ovens have been carried out.

Whessoe Foundry and Engineering Company.—The Directors have decided (subject to final audit) to recommend a dividend of 17½ p.ct., *less* tax, in respect of the year to March 31, 1930. The date of the annual meeting is May 30.

Halifax Nursing Association and Gas Fires.—The 18th annual report of the Halifax Nursing Association shows that the gas fires installed at the Home in Clare Road are much appreciated. The Inspector from the Queen's Institute says that it is noted with pleasure that gas fires have been fitted in the bedrooms of the general staff.

Dukinfield Gas Department Report.—The report on the balance-sheet of the Dukinfield Gas Department for the year ended March 31 last shows that the sale of gas amounted to 99¼ million c.ft., being a decrease on the previous year of 1 million c.ft. The gross cost of production of gas was 3s. 11·26d. per 1000 c.ft. of gas sold. The gross profit for the year was £2328.

Guildford Stock Issue.—As will be seen from our advertisement columns, Messrs. A. & W. Richards, of 37, Walbrook, E.C. 4, are offering for sale by tender, on behalf of the Directors of the Guildford Gas Light and Coke Company, £27,750 5 p.ct. redeemable debenture stock, to be redeemed at par on June 30, 1950. The minimum price of issue is £95 per £100, yielding at that price, allowing for redemption, £5 9s. 2d. p.ct. Tenders must be received not later than 11 a.m. on Tuesday, May 27.

New Showrooms at Rushden.—The Rushden and Higham Ferrers Gas Company are having premises in the High Street, Rushden, adapted as a showroom.

Clitheroe's New Holder.—The erection of Clitheroe's new gasholder is almost complete. Of the waterless type, the holder is 105 ft. high from the base to the eaves, has a diameter of 87 ft., and a capacity of 500,000 c.ft. It has 36 tiers of steel plates. The contractors are Messrs. Robert Dempster & Sons, Ltd., of Elland. The erection of the gasholder marks the completion of a reconstruction scheme which has been taking place at the works for three or four years. Every process, from the moment the coal leaves the railway to the time the gas is forced along the mains, has been improved.

Is Gas Decadent?—An advertisement appearing in the Hull "Daily Mail" for May 14 asked the question: "Is Gas Decadent?" It then proceeded to show that in Hull, at any rate, the answer is emphatically in the negative. The figures set forth in chart form show that during the ten years 1919 to 1929 the number of gas meters in use in Hull has increased from 49,146 to 55,383. Gas fires and radiators, perhaps, show the most striking increase—from 9175 to 29,554. Cookers have increased from 18,207 to 31,566 and gas boilers from 519 to 7062, while the actual sales of gas recorded by the Hull Station of the British Gas Light Company have increased from 1465 million c.ft. in 1919 to 2049 millions in 1929. "Look at these figures, and judge for yourself," says the advertisement.

Topical Items.

Five Business Principles.

At the opening of the Annual Conference of the Incorporated Sales Managers' Association at Scarborough on Saturday last, the President of the Association, Mr. Francis W. Goodenough, C.B.E., asked what were the essential principles upon which those in control of the commercial policy and practice of any business must base the planning of that policy, and the execution of that practice, if they were to carry the business forward to continuing and increasing success. The first principle, he said, is the obvious but all too frequently forgotten one that every business exists for the service of the community in general and of the individual customer in particular; and that business relations can only be permanently profitable to the seller if they are also profitable to the buyer. That principle—which can be expressed as a motto in the words "Service First"—is so fundamental that it may be said to be not only the first principle of commerce, but the last; for every other principle for the conduct of business, as far as the relations between buyer and seller are concerned, is only an extension or variation of it.

I have found it very useful to point out to every member of my staff, officers and workmen alike, and frequently to remind them, that the directors have no money with which to pay their salaries and wages, or their co-partnership bonuses and dividends, or wherewith to pay fees to themselves or dividends to the other shareholders, except that which our customers pay to our cashiers. The customers are, in the long run, their employers. They are servants of the public; and if they, as well as we of the management, do not see to it that the customer is thoroughly satisfied, there will be less custom than there might be—or no custom at all—to provide employment for them. This is a very elementary truth, yet its realization, like commonsense, is by no means common.

The second principle underlying sales management may therefore be expressed thus: Business can only be truly and permanently successful if its conduct is consistently and persistently directed to securing the satisfaction and confidence of the customer.

A third principle—again an amplification of the first principle of mutual profit, and a necessary corollary of our second—is that the mind, the habits, and the needs of the customer must be the constant and sympathetic study of those who wish to serve him, so that goods or services can be designed and produced which will supply those needs perfectly—better if possible than ever before.

A fourth principle essential to the conduct of business—yet another amplification of the first—is that the word of the seller should be as good as his bond, and his performance better if possible than either.

A fifth principle is that every complaint received, whether justified or not, should be made an opportunity to make a satisfied friend of the customer, who rarely complains unless he believes himself to have just cause.

Chartered Accountants Visit Beckton.

In connection with the Jubilee celebrations of the Institute of Chartered Accountants of England and Wales, a party paid a visit to the Beckton Gas-Works on Wednesday, May 14, at the kind invitation of the Directors of the Gas Light and Coke Company. The visitors were welcomed by Mr. Thomas Hardie (Chief Engineer to the Gas Light and Coke Company), Mr. R. W. Hunter (Engineer at Beckton), and a number of the engineering assistants.

After the inspection of the works the visitors were entertained at tea, when Mr. E. Boothroyd proposed a very hearty vote of thanks to the Gas Light and Coke Company for the facilities granted for this visit, coupling with his remarks the name of Mr. Hardie. The Chief Engineer briefly replied on behalf of the Company.

Satisfactory Year's Work at Pontypridd.

At a meeting of the Gas Committee of the Pontypridd Council on May 13, Mr. David Muir, Engineer and Manager, reported the result of the year's working to March 31.

The output of gas was 165,216,300 c.ft.—an increase of 5,160,300 c.ft. over the previous year—while sales increased 7,675,228 c.ft. Unaccounted-for gas was 11·91 p.ct., as against 13·44 p.ct. the previous year. A total of 99 new consumers were connected up, and the following additional appliances put into commission: 221 cookers, 489 boilers, 107 fires, and 590 irons. During the year 615 services were renewed, and 1249 drawn joints on mains were repaired. The gross profit for the year was £13,138, which, after deducting £7278 for loan charges, £1200 for income-tax, and £1600 to the relief of rates, left a net profit of £3000.

Mr. Muir was congratulated on the year's working, special reference being made to the reduction in unaccounted-for gas, as the Pontypridd area of supply suffers considerably from subsidence.

Gas and Electricity.

Bradford Engineer Corrects a Misconception.

Mr. Ernest J. Sutcliffe, the Bradford City Gas Engineer and General Manager, gave a special report to his Committee, on May 16, on the present position of the gas industry, its steady expansion in spite of the much-vaunted increase in use of electricity, and the handicap under which the gas industry is having to labour owing to the widespread State and Press publicity for electricity and apparent prejudice against gas. Mr. Sutcliffe said that from remarks made occasionally at meetings of the Gas Committee and observations sometimes made to himself personally by members of the Committee, it would seem that the popular misconception as to the relative positions of the two industries as competing utilities were to some extent shared even by certain members of the Gas Committee itself.

One of the most prevalent of these misconceptions was that the expansion of electricity must be accompanied by a decline in the use of gas. The fact was entirely contrary to this supposition. The use of gas continued vigorously to increase, and, given fair competition, there was no reason to fear that it would eventually be displaced from the position it now held. Since the State assumed responsibility for, and lent financial aid to, the electrical industry fair competition, and particularly fair consideration of the claims of gas, had been increasingly difficult to obtain. Members of all parties in the Legislature had, in public utterances and otherwise, done all in their power to popularize electricity and keep it in the public eye, and they had been assiduously seconded in these endeavours by the lay Press. By inference, if not directly, they had relegated gas to the background and branded its uses with the stamp of obsolescence.

Though such a view of the gas industry was false, there was a real danger that such propaganda working on the mass psychology of the public would cause undeserved, but none the less serious, damage to the gas industry. It was in order to counter this danger that Mr. Sutcliffe appealed to the members of his Committee, who were responsible to the citizens for the welfare of their gas undertaking, to familiarize themselves with the true position of the industry as a whole, with the progress it had made and was making, and with the nature, quality, and cost of the services it could render to its customers. Having done that, he had no doubt they would assist in ensuring, as far as they were able, that only fair competition should be encountered, and that the claims of gas should receive consideration on their merits.

With this in view, Mr. Sutcliffe supplied to his Committee statistics relating to gas and electricity.

It could, Mr. Sutcliffe suggested, hardly be said that an industry which, after an existence of about 80 years, during the next 28 years increased its sales by over 222 p.ct., its consumers by over 357 p.ct., its mileage of mains by 181 p.ct., and the capital employed by over 165 p.ct., and was still paying its way without Government assistance (though all the time hampered by obsolete legislative restrictions), was decadent, much less dying.

Although the number of consumers—nearly 9 million—might appear to be nearing saturation point (bearing in mind the number of houses not within reach of a gas supply), saturation was far from being reached in regard to consumption per head of population. Comparisons, he said, were often made between the small use of electricity in this country compared with that in America, the argument apparently being that if electricity were sold here as cheaply as in America everybody would use it, and gas would soon become obsolete. It was interesting, therefore, to know that although electricity in America was cheaper, and gas dearer, than in England, the consumption of gas per head in America was much higher than in Britain.

Turning to the popular opinion that gas was being gradually displaced by electricity for street lighting purposes, Mr. Sutcliffe gave the following figures of the volume of gas supplies for street lighting, which he suggested spoke for themselves in refutation of that idea:

1920	6,928,745,000 c.ft.
1928	10,499,430,000 ,,
Increase	3,570,685,000 ,,

Lectures on Gas Meters at Great Yarmouth.

On May 14, under direction of the Great Yarmouth Gas Company, the Engineers and representatives of the Lowestoft and Gorleston and Southtown Companies met to hear a lecture on gas meters. The lecture, which extended to nearly six hours, was delivered by Mr. A. T. Gilbert, author of "Gas Meters," &c., and Technical Representative of Messrs. Willey & Co., of Exeter. Mr. Gilbert dealt with meters almost entirely from the "gas man's" viewpoint, illustrating his various points with actual working models and also diagrams.

Mr. T. V. Johns (Lowestoft) presided in the unavoidable absence of Mr. P. D. Walmsley, and was supported by Mr. E. F. Keable (Gorleston), Mr. F. E. Muston (Distribution Superintendent, Yarmouth), and Mr. Wood (Lowestoft). After nearly an hour of questions, to which Mr. Gilbert replied at length, the Chairman complimented the lecturer on having maintained the attention and interest of his hearers for so many hours, and also upon the very clear and thorough manner in which he had dealt with his subject. He felt sure that all would go away from the meeting knowing more about meters than when they came.

Mr. Muston and Mr. Keable also expressed their appreciation, and proposed a hearty vote of thanks to the lecturer, and also to Messrs. Willey & Co., for allowing Mr. Gilbert to come and talk to them on a subject of such vital importance. A list of nine questions was given by the lecturer, and those who cared to answer six of them would be awarded prizes given jointly by the Companies in question and Messrs. Willey & Co.

Gas Exhibition at Deal.

An extremely interesting exhibition of gas appliances was held last week, under the auspices of the Deal and Walmer Gas Company, with the co-operation of Messrs. John Wright & Co., Messrs. R. & A. Main, and the Wonder Washer Co. There was a large attendance at the formal opening of the exhibition on May 13, by Mr. E. H. Hinds, J.P., one of the Directors of the Company.

After a few introductory words from Mr. J. F. Tyndall, Manager of the Company, Mr. Hinds said it was 30 years since a similar exhibition was held in Deal, and during the intervening period he need hardly say the gas industry had made enormous strides in regard to appliances for the use of smokeless fuel. The exhibition was held in co-operation with firms whose representatives would be pleased to instruct and enlighten any who wished for further information. They were not attempting to demonstrate the remarkable progress that had been made by the gas industry, but were showing apparatus most useful and applicable to domestic use in various ways in a town of this kind. As they looked round they would see excellent examples of a variety of cooking and heating appliances. Miss Andrew, a cooking expert, was giving demonstrations each day, and he was sure the information would be most useful and valuable in regard to the treatment of gas stoves in their own homes. The "Wonder Washer" was a new article on the market, which certainly seemed a labour-saving contrivance.

As they might possibly be aware, Mr. Hinds added, the Deal and Walmer Gas Company had recently taken showrooms in High Street, which they hoped to open by the end of June or early in July. At those showrooms the Company would be able to exhibit the most modern and useful types of stoves, and to demonstrate the advantages of smokeless fuel. He hoped, when the showrooms were open, the public would visit them, and would not hesitate to inquire of the representative of the Company on any matter in regard to gas and gas appliances where information was required. Mr. Tyndall, the Company's Manager, was only too ready to give assistance to gas consumers. On behalf of his colleagues on the Board of the Company he thanked the firms who had assisted in this demonstration. The Chairman of the Company regretted that he was unable to be present personally, and had asked him (Mr. Hinds) to deputize for him. The Chairman hoped that the exhibition would meet with the approval of the public, and that it would lead not only to greater convenience and comfort to gas consumers, but to further business.

Mr. Tyndall explained that in connection with the cookery demonstrations the meters attached to the stoves used would be read before and after each demonstration, and the amount of gas used and the cost would be announced to the audiences.

Miss Andrews gave demonstrations each day of the exhibition at 3 and 7 p.m.

Among the exhibits was a gas meter with glass sides and top, through which the working of its mechanism could be seen. Messrs. John Wright & Co. had on view a selection of their "Classic" gas fires, of artistic design, in various metals, and embodying the "Thermo-XX Beam" radiants. Messrs. R. & A. Main featured de luxe "Mainamel" cookers, with "Conservor" and "Mainstat" oven heat controllers.

The exhibition was open from 10 a.m. each day from May 13 to May 16.

A New Gas-Heated Radiator.

We were interested the other day in inspecting a new gas-heated radiator, particularly suitable for garages, greenhouses, and the like, and also applicable to domestic purposes. As a combined towel-airer and radiator, for example, it ought to find useful service in bathrooms.

The radiator, which is known as the "Latona" heater, and is manufactured by Latona Heaters, Ltd. (Kimberley Road, Willesden Lane, N.W. 6), consists of a closed water circuit with some 12 ft. of exposed pipe, and an enclosed heating coil on which the flames from a gas burner play.

There are 5 sq. ft. of radiating surface which, we are informed, raise the temperature of a room or garage of 2000 c.ft. capacity 10° Fahr. in one hour, at the cost of less than ½d. with the gas full on. The temperature is maintained with a much lower gas consumption.

The closed water circuit consists of drawn steel tubing of great strength, tested to withstand, so we were told, an internal pressure of 1000 lbs. per sq. in. The joints to the heating coil are welded, and distilled water is employed. Corrosion and condensation are eliminated; and the surface temperatures it is possible to obtain are high.

The heating unit can be entirely enclosed, with air inlet and flue outlet connecting to the outside atmosphere, or the heating unit can be placed outside the building, such as a garage, only the heating coils themselves being positioned in the apartment which it is desired to heat.

The "Latona" heater is also characterized by simple fixing and low first cost.

Sixty-One Years' Service with the Sheffield Gas Company.

Mr. Thomas Jeff, of Sheffield, completed 61 years' service with the Sheffield Gas Company on May 3. This record of long service was recognized by the Company's Directors at their meeting on May 12, when Col. H. K. Stephenson, D.S.O., on behalf of the Board, presented to Mr. Jeff a gold watch and chain suitably inscribed.

In making the presentation, Col. Stephenson referred in appreciative terms to the excellent way in which Mr. Jeff had at all times discharged his duties, and said that he had served under four Chairmen and three General Managers.

He believed Mr. Jeff was the only surviving member of the staff who was with the Company when the offices were situated in Shude Hill prior to the building of the existing offices in Commercial Street in 1875. On behalf of the Board, he congratulated Mr. Jeff on his long and devoted service, and expressed the wish that he would continue for some years.

Alderman Fenton, in associating himself with Col. Stephenson's remarks, said that he had known Mr. Jeff for many years and had always had a great respect for him. He recalled the fact that Mr. Jeff was a prominent member of the old Amateur Parliament in Sheffield.

Mr. Jeff suitably acknowledged the gift.

Annual Meeting of the Midland Juniors.

The Annual Meeting of the Midland Junior Gas Association was held on May 15—Mr. A. R. MYHILL presiding.

The annual report and statement of accounts were approved. In the report it is mentioned that membership of the Association has increased during the session from 242 to 266.

The Council announced with regret the loss, through death, of one of the earliest Hon. Members, Dr. W. B. Davidson, "who gave such valuable support to the Association in its early days, and to whose energy the present success of the Association is largely due."

Mr. F. A. C. Pykett (Coventry) was, on the recommendation of the Council, appointed Junior Vice-President.

The PRESIDENT stated that Mr. Pykett, who was on the distribution side of the industry, had rendered useful service on the Council.

Mr. Pykett and Mr. F. C. Sylvester (Hinckley), who retired from the Council, were thanked for their services; and to the vacancies Mr. J. H. Duignan (Kidderminster) and Mr. H. Stanley Adams (Bilston) were elected.

To the officers of the Association a hearty vote of thanks was passed on the motion of Mr. BENGOUGH, seconded by Mr. W. L. S. SPINKS.

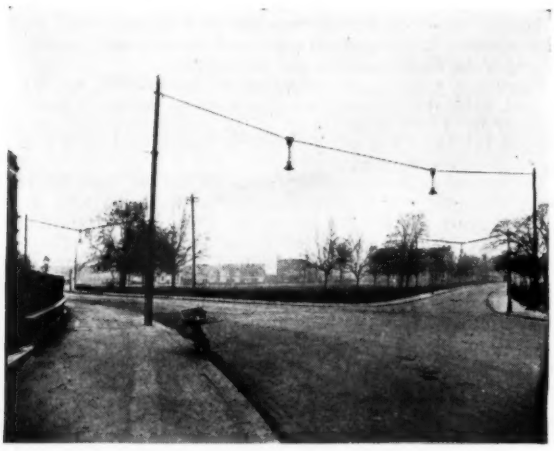
Mr. H. C. WILLS (Hon. Secretary) warmly acknowledged the services of his asistant, Mr. F. A. Grant.

Mr. W. J. PICKERING (a representative of the Junior Association on the Executive Committee of the General Education Committee) paid warm tribute to the work of Messrs. H. R. Hems, W. Macnaughton, R. G. Marsh, and W. L. S. Spinks on the Midland District Education Committee. Their work was, he said, of large proportions; and it was of vital importance to the success of the Education Scheme that the District Committees should continue to function.

XUM

Modern Suspension Gas Lighting.

The accompanying illustration shows an interesting example of suspension gear in a London Borough. In the forefront of the photograph is a wide span with two lamps instead of one, arranged to draw to either side of the road and lower to the side walk for maintenance.



This type of suspension gear, which is manufactured by the London Electric Firm, of Croydon, has been in successful continuous use for 25 years. It embodies the automatic connection and weight relieving feature, so that the weight of the lamps is only on the small hauling rope during the raising and lowering operations.

There is practically no limit to the permissible width of the span, and any reasonable number of lamps can be suspended therefrom. Also, double span wires can be used, if desired.

The installation was carried out by Messrs. William Sugg & Co., of Westminster, whose seven-light "Rochester" lamps are used, with clock controllers.

Gas Progress at Barrow.

The annual report on the Barrow Corporation Gas Undertaking for 1929-30 shows a loss of £851, compared with a net profit of £87 for the previous 12 months. The income was £97,020, compared with £99,038, a decrease of £2018. The expenditure amounted to £97,871, as against £98,951 in 1928-29—a decrease of £1080. The selling price of gas for the past year has been 3s. 9d. per 1000 c.ft., as compared with 4s. 3d. for the first six months and 3s. 9d. for the remaining six months of the previous year. Coke had realized £376 more than in 1928-29; crude tar had been sold at an average price of £1 12s. 7d. per ton, as compared with £2 7s. 7d. for the previous year.

The average net cost of making and distributing each 1000 c.ft. of gas during the past year was 4s. 1·54d., and the average selling price 4s. 1d. The gas renewals fund at the beginning of the year was £1162 in debt. After setting aside the usual contribution of £11,273, and taking into consideration the amount of £16,450 expended during the year, the deficiency at the end of the year was £6339.

The Borough Treasurer adds to his report: "It will be appreciated that with the fund so considerably overdrawn it is essential that further expenditure against the fund will have to be curtailed." There is a net surplus of £3585 in the gas revenue account which is retained as a working balance. The Gas Manager points out that there has been a very satisfactory increase in the consumption of gas during the year, equal to 8·4 p.ct., as compared with the previous year, due to the increasing popularity of gas for domestic purposes.

New Method of Loading and Unloading Lorries.

[*Photo. by the "Western Mail and South Wales News."*

SHOWING THE DISCHARGE, IN TEN SECONDS, OF 2 TONS OF COKE BY A LORRY FITTED WITH THE PATENT MOVABLE FLOOR.

There is no necessity for the lorry to move forward. This photograph was taken at the works of the Cardiff Gas Light and Coke Company.

Our readers will be interested in a new method, illustrated here, of loading and unloading lorries. It employs a movable floor, the invention of Mr. F. J. Mundy, of Penarth, and Mr. Charles Solomon, of Bath, and it is manufactured and sold by the Principality Wagon Company, Ltd., Ferry Road, Cardiff, under licence from Movable Floor (Vehicles), Ltd., Westminster.

The floor of the lorry consists of a series of tube rollers rotated on ball races and mounted across the chassis frame. At each end of the frame—*i.e.*, the cab end and tail-board end—is a wooden roller slightly larger than the tubes, to which is attached the belt and which actually forms the floor of the lorry. These two rollers are geared and operated by hand.

The lorry illustrated is a two-ton Dennis, and a full load of coke or coal or of bricks, coal, sand, wet mortar, tarmacadam, gravel, &c., can be discharged in ten or fifteen seconds, with perfect ease, by one man.

The number of different uses this patent floor can be put to are countless. The floor is not hurt by hot coke; and we understand that its life for coke handling can be estimated by years rather than by months. The movable floor can be fitted to any type or size of chassis.

Society of British Gas Industries.

Annual General Meeting.

Another year of useful work on behalf of the gas and allied industries was reported at the Annual General Meeting of the Society of British Gas Industries, held at the Hotel Metropole, Northumberland Avenue, W.C., on Friday, May 16, and an interesting and valuable Presidential Address was delivered by the retiring President, Viscount Cecil of Chelwood, in which he dealt with the importance of the extension in industry generally of co-partnership principles, in connection with which the gas industry has done so much pioneering work. The Annual Dinner of the Society was held at the same Hotel in the evening, at which Viscount Cecil again presided, and a number of distinguished guests were entertained.

On the opening of the business proceedings, the minutes of the last Annual Meeting were taken as read and confirmed.

REPORT OF THE COUNCIL FOR 1929-30.

Mr. C. A. GOODALL (Chairman of the Council) then submitted the following report on the work of the Society during the year 1929-30.

We have to record with much regret the death of the following members:

R. A. Hepworth, Managing Director, R. & J. Dempster, Ltd.
T. V. Miles, Director, Newton, Chambers, & Co., Ltd.
Robert A. Morrison, Director and Secretary, Stewarts & Lloyds, Ltd.
H. Douglas Burn, Managing Director, Metropolitan Gas Meters, Ltd.
Henry N. Bickerton, Chairman and Founder of the National Gas Engine Company, Ltd.
Henry S. Knight, General Manager, R. & J. Dempster, Ltd.
Victor Falk, Director and one of the Founders of Falk, Stadelmann & Co., Ltd.
Col. Arthur Bray, Chairman, George Bray & Co., Ltd.
J. G. W. Aldridge, Chairman and Governing Director, Aldridge & Ranken, Ltd.
E. H. Horstmann, Joint Managing Director and Secretary, the Horstmann Gear Company, Ltd.
James W. Slack, Vice-Chairman and Managing Director, Richmond's Gas Stove Company, Ltd.
Col. David Laidlaw, Chairman, R. Laidlaw & Sons (Edinburgh), Ltd.

The Society wishes to offer its hearty congratulations to two of its Past-Presidents:

His Grace the Duke of Sutherland, K.T., on his appointment by His Majesty The King as a Knight of the Order of the Thistle.
Sir Arthur Duckham, G.B.E., K.C.B., on the conferment on him by His Majesty The King of a Knight Grand Cross of the Order of the British Empire for his services as Leader of the Economic Mission to Australia.

The Institution of Gas Engineers.—We congratulate the Institution on the Grant by His Majesty the King of a Royal Charter, and extend to them our best wishes for increased prosperity and usefulness to the gas industry.

British Commercial Gas Association.—We also offer our congratulations to the Association on their very successful conference, held at Eastbourne in October, at which several of our members were present.

Board of Trade Committee on Deaths from Gas Poisoning.—The Society co-operated with the National Gas Council in connection with the evidence given on behalf of the gas industry before the Board of Trade Committee in October, and was represented at a conference, at which representatives of the various bodies in the gas industry were also present, held at the Board of Trade in April, when the recommendations in the Committee's report were discussed.

Gas Meter Testing.—We are co-operating with the Institution of Gas Engineers and the Association of Statutory Inspectors of Gas Meters with a view to avoiding fresh Board of Trade Instructions on the subject of gas meter testing. A very useful joint conference was held in March.

Joint Fuel Committee.—The Society has accepted an invitation to join the Joint Fuel Committee, and the Chairman, Vice-Chairman, and Immediate Past-Chairman have been appointed as our representatives.

The Society has become a guarantor towards the expenses of the publication, "Standard Methods of Testing Tar and its Products," recently published by the Standardization of Tar Products Tests Committee.

British Engineering Standards Association.—The Association has set up a Gas Industry Committee, and we are co-operating with the Institution of Gas Engineers in the matter.

Illuminating Engineering Society.—A Technical Committee has been set up to which any technical problems that come before that Society can be referred, and Mr. Philip H. Sugg has been appointed as our representative on the Committee.

Sir John Cass Technical Institute.—The Institute has recently set up a Consultative Committee on Fuel Technology, and Dr. E. W. Smith has been appointed our representative on the Committee.

British Industries Fair, Birmingham, 1930.— Gas Industries Section.—The Society again took the initiative in the organization of the special Gas Industries Section at the Birmingham Section of the British Industries Fair, and members of the Society gave wholehearted support to the section as individual exhibitors, the majority of the seventy-seven firms exhibiting being members of our Society.

The Joint Gas Conference was also again arranged for in connection with the Fair, and the thanks of the Society are due to Mr. Frederick J. Gould for the very able paper he gave on the first day in introducing for discussion the subject of "Gas Lighting." In addition, two other papers of great interest were given—one on the second day by Mr. A. H. Barker, Lecturer on Heating and Ventilating Engineering at the University College, London, on "The Comparative Costs of Domestic Fuel;" and one on the third day by Mr. W. B. McLusky on "Residual Products and Their Effect upon the Price of Gas." The attendance at all the meetings was excellent, and our thanks are due to Mr. H. C. Smith, of Tottenham, for his work as Hon. Secretary of the Conference.

In addition to the Joint Gas Conference—which took place in the first week of the Fair—there was, during the second week, a visit by members of the Gas Salesmen's Circles and of the Midland Junior Gas Association. Members of the Coke Oven Managers' Association and of the Refractories Association of Great Britain were also entertained to luncheon by the Fair Management Committee.

The organization behind the Gas Section gets, if possible, better every year, and there is little doubt that gas engineers are getting to look forward to this National Fair and to attend with the definite purpose of seeing the latest types of appliances and plant which manufacturers have to offer, and they are no doubt influenced in their future buying by what is brought prominently to their notice during their tour of the Gas Section. Great care was taken this year that all gas engineers and buyers should have a ticket and an invitation to attend the Fair, and the number of those present was most gratifying. The very presence of the Gas Industries Section in an excellent position, presenting, with its uniform character of stand design and colour scheme, a bold front to all visitors, has the very best possible effect on public opinion, and favourable public opinion is the life-blood of our industry.

We are much indebted to the Birmingham Corporation Gas Department for the energetic work they put into the organization of the section, to the Joint Committee under the Chairmanship of Mr. R. J. Milbourne, and to Mr. R. J. Rogers, who again so ably acted as Hon. Secretary.

Standard Conditions of Contract.—The Institution of Gas Engineers has set up a Committee to consider the suggested modifications recommended by the Society.

Retort Setters.—The relations of Section I. with the Amalgamated Union of Building Trade Workers have continued to work harmoniously.

Gasholders.—The Factory Inspection Department of the Home Office is now investigating the question of prevention of accidents in connection with repairs to gasholders, and the Society has appointed a Committee to co-operate with this Department of the Home Office to deal with the matter.

Refractory Materials.—During last summer the opportunity of visiting refractory works in America was given to the majority of the members of Section X. Mr. W. J. Gardner, President of the Ceramic Society, and a large party inspected some thirty works, and were able to obtain the latest American ideas as to the usage and manufacture of refractories. Mr. Frank West, our Vice-Chairman, took a very active part in arranging the tour and making it a success. The British Refractories Research Association has continued its work on refractory materials for the gas industry, and great and continuous progress has been made with problems connected therewith. During the year the gas industry has obtained fuller representation on the Council. Progress in the refractories industries continues. At the special meeting in November last of the Institution of Gas Engineers, the report of the Joint Refractory Materials Committee attracted a great deal of interest, and was discussed at considerable length. Both the papers and the discussion were a happy blend of pure research and practical work.

We very much regret to report the resignation, at the end of last year, and very shortly afterwards the death, following a motor accident, of Mr. J. P. Leather, the Chairman of the Joint Committee. For many years Mr. Leather had worked whole-heartedly for the understanding and adaptation of refractories for the gas industry, having been also a member of the Council and faithful supporter of the British Refractories Research Association. We were singularly fortunate in being able to persuade Dr. Harold G. Colman to take the Chairmanship of the Joint Committee, and feel that under his leadership the work is bound to prosper. The Refractory Materials Joint Committee has held several meetings at which important matters were fully discussed, and many of them afterwards referred to the Research Association for investigation, while the interests both of the gas industry and of our members have been closely studied.

Gas Lighting.—The Joint Committee, consisting of members of

the British Commercial Gas Association and members of Section VII. of the Society, met in October and discussed the position of gas lighting in the industry and the advisability of introducing suitable advertisements in the Press with a view to popularizing the same. Steps are now being taken to bring the various forms of gas lighting to the notice of the public.

Gas Coal Section.—The members of the Coal Section are keeping in close touch with matters in connection with the coal industry. At the request of the section, the National Gas Council has set up a Committee to meet our Committee to discuss any questions which may prove of mutual interest when considered advisable.

There appears to be no section in the Coal Mines Bill which directly attacks the distributor, and the interests of our members are being closely watched by the National Council of Coal Traders. One of our members, Mr. Dobson, is serving on the Sub-Committee of that Council, and he has reported that the coalowners have promised that no arrangements will be come to which will affect the factors' interests without their having plenty of notice of any suggested proposals. Under Part III. of the Coal Mines Bill it is noted that the Federation of British Industries and the Association of British Chambers of Commerce may have the right to nominate one member on the Coal Mines National Industrial Board, and as the Society are members of the Federation, and we have an organized Coal Section, representation has been made to the Federation that consideration might be given to the nomination of one of our members. The Federation has promised that the suggestion shall be brought to the notice of the Board in due course.

Gas Salesmen's Circles.—A Joint Committee has been appointed, and rules have been drawn up under which the award is to be made, of the gold medal offered by the Society, for the best paper of the year dealing with the technical side of the gas industry, contributed by members of the Salesmen's Circle.

Examination Prizes.—The prizes in the City and Guilds of London Institute examinations in gas-works practice, gas supply practice, and gasfitting have been duly awarded and announced in the Technical Press. The prizes have again been offered this year.

Revision of Railway Classification of Goods.—Messrs. Tweedy & Holt, our Railway Experts, of Halifax and London, continue to watch our interests, and their reports keep us in touch with railway matters.

Membership.—We are pleased to report that the membership of the Society is steadily increasing, new firms having joined in the period under review, and, at the present time, there are other applications under consideration by the Council.

The Society wishes to accord its best thanks to the Right Hon. Viscount Cecil of Chelwood for his able and valuable services during his Presidency. On his retirement he has been pleased to accept the office of a Vice-President, and we hope that we may long have the benefit of his counsel and advice. We also desire to place on record our best thanks to the Right Hon. the Marquess of Hartington, M.P., for his able and valuable Presidential Address at the last annual meeting, which dealt with the present aspects of coal carbonization and particularly to the rival merits of high and low temperature treatment of coal as the basis of profitable conversion of coal and its chief components, gas, coke, and tar; also to Mr. Charles A. Goodall, Chairman of the Council, for his opportune address on "Coal Handling," at the Autumn Meeting, which led to a good discussion.

On behalf of the Council,
C. A. Goodall,
Chairman.

The New President.

Mr. Goodall said he was delighted to be able to announce that Lord Eustace Percy had accepted the Society's invitation to serve as its President for the year 1930-31. [Applause.] He reminded the members that Lord Eustace Percy, who was the seventh son of the seventh Duke of Northumberland, had served his country in many capacities. He had been for some years in the Diplomatic Service (1911-1919); Member of Parliament for Hastings since 1921; Parliamentary Secretary to the Board of Education in 1923; Parliamentary Secretary to the Ministry of Health 1923-1924; and President of the Board of Education 1924-1929. The members were delighted to have secured his services, and looked forward to seeing him in the chair. Unfortunately, however, he was unable to attend the Annual General Meeting and the Annual Dinner, for reasons which were explained in a letter he had written to Mr. Griffiths (the Secretary of the Association), which was as follows:

> I am very sorry indeed to find that your Annual General Meeting is to be held to-morrow, as I have a long-standing public engagement which obliges me to leave London at the latest by a 3.20 train—and I may be obliged to leave by an earlier one. I regret extremely that I shall, therefore, be unable to be present for my induction, or to attend the dinner. I hope the members of the Society will understand that my absence is not due to any discourtesy on my part towards them or any lack of appreciation of the honour they have done me in inviting me to be President, but simply to my unfortunate absence in America during the past two months, which prevented me from adapting my arrangements to theirs. Will you please accept and convey to the meeting my sincere apologies and my thanks for the Society's kindness.
>
> Yours sincerely,
> (Signed) Eustace Percy.

A Tribute to Deceased Members.

At Mr. Goodall's request, the meeting stood in silence for a short time as a mark of respect for the members of the Society who had passed away during the year.

Mr. Goodall's Comments on the Report.

Mr. Goodall, before moving the adoption of the Report, said that it contained much of interest and importance to the members of the Society as well as to the gas industry as a whole. It was not necessary for him to elaborate to any great extent the matters dealt with therein, particularly as the members were anticipating a very instructive and inspiring address from their distinguished President, to which they wished to devote as much time as possible.

In conjunction with the kindred associations, the Society had again during the year taken part in the very successful and useful joint gas conference held at Birmingham during the British Industries Fair, at which the Gas Section was again organized by the Society. Mr. Goodall added that it had been decided to arrange for the Gas Section at the 1931 Fair, and also for a Joint Gas Conference to be held during the first week, as before.

The Society had taken its part in the work of the several associations and technical societies which dealt with matters connected with the industry, and, in addition, in conferences at the Board of Trade and the Home Office.

On behalf of the Society he took the opportunity to join in the congratulations to the South Metropolitan Gas Company upon the splendid victory which it had won in connection with the public lighting at Lewisham, which was another proof of the correctness of the attitude which the Society had taken in pressing for gas lighting being kept more prominently before the notice of the public.

While the work of the Council was getting more strenuous each year, the membership was growing, and the good feeling and mutual confidence among the members was increasing, with the result that the Society was steadily progressing and doing useful work, not only to the advantage of its members, but to the gas industry generally, and was more and more justifying its existence.

Finally, Mr. Goodall expressed his thanks and appreciation to his colleagues on the Council for the loyal support which they had given him at all times during his year as Chairman.

He then moved the adoption of the Report.

Mr. Frank West (Vice-Chairman of Council), seconding, said it would be agreed that progress had been made and that some good work had been carried out by the Society during the past year. He hoped it would continue to do good work, and would perhaps do even better in the future than in the past.

There was no response to the President's invitation to the meeting to discuss the Report, and the motion for its adoption was carried unanimously.

Finance.

Dr. E. W. Smith (Hon. Treasurer) proposed the adoption of the accounts for the year 1929. Inasmuch as a statement of accounts had been circulated to all members, he did not deal with the items in detail, but pointed with satisfaction to the fact that the adverse balance of the previous year had been converted into a credit balance. This was accounted for largely by the fact that certain items which previously had been included in the normal accounts are now allocated to the Special Fund which had been built up. The total amount subscribed to the Special Fund in the year 1929 was £2704 8s. 5d., and with the exception of £330 11s. 3d., the money had been spent, as shown by the accounts. A sum of £2000 had been handed to the British Commercial Gas Association. The existence of the fund was very satisfactory, and he hoped it would increase.

No other matters connected with the accounts appeared to him to need special mention, but he would be glad to answer any questions put to him.

Mr. R. B. Hodgson seconded the motion for the adoption of the accounts, which was carried unanimously, without discussion.

Council Representatives of Sections.

The President announced that the following had been elected to serve on the Council as representatives of the sections:

Mr. W. H. Handley	to represent Section	I.
Mr. T. A. Clapham	,, ,,	II.
Mr. Ernest West, M.I Mech.E.	,, ,,	III.
Mr. Leonard Hartley	,, ,,	IV.
Mr. H. E. Bennet	,, ,,	V.
Mr. D. MacCallum Gibb	,, ,,	VI.
Col. E. A. Wilson, M.C., T.D., D.L.	,, ,,	VII.
Mr. George Ewart	,, ,,	VIII.
Mr. A. B. Balmford	,, ,,	IX.
Mr. C. R. F. Threlfall, M.C.	,, ,,	X.
Mr. B. B. Waller, A.M.Inst.C.E.	,, ,,	XI.
Mr. Thomas O. Wilton	,, ,,	XII.
Dr. E. W. Smith, D.Sc., F.I.C.	,, ,,	XIII.
Mr. W. J. D. Howell	,, ,,	XIV.
Mr. Douglas W. Turner	,, ,,	XV.

Election of Officers.

Mr. Frederick J. Gould proposed the election of Mr. Frank West, M.I.Mech.E., as Chairman of the Council, and testified

to the esteem in which he was held by the members of the Society generally. He was a member of a distinguished family of Engineers, and it would be recalled that it had been the pleasure of the Society some twenty years ago to elect another member of that family, Alderman Fred West, to this position. Mr. Frank West's experience would be of very great value to the Council, and it was a great pleasure to propose his election.

The resolution was seconded by Mr. CHARLES CLARE, and carried unanimously.

Mr. FRANK WEST, after expressing his appreciation of the honour that had been done him, assured the members that he would do his best to uphold the traditions of the chair and to emulate the good work of Past Chairmen for the good of the Society.

Mr. R. B. HODGSON, moving the election, as Vice-Chairman of the Council, of Mr. D. MACCALLUM GIBB, said he was a member of a very distinguished firm interested in the gas industry of this country, and his advice and help to the Council had been of great value. His fellow Members of Council had learned to appreciate his services and to recognize his ability to fill the position they now asked him to undertake.

Mr. E. J. DAVISON seconded, and the resolution was carried unanimously.

Mr. MACCALLUM GIBB briefly expressed appreciation of the compliment paid him.

Mr. B. B. WALLER, moving the election of Mr. Frederick J. Gould as Hon. Treasurer, said that all members appreciated the very active interest that Mr. Gould had always taken in the affairs of the Society, and felt quite confident that he would be an excellent Treasurer.

The resolution was seconded by Mr. E. J. DAVISON, and carried unanimously.

Alderman GEORGE CLARK proposed the re-election of Mr. E. J. Davison, M.I.Mech.E., as Hon. Secretary, and took the opportunity of thanking him for the tremendous work he had done on the Society's behalf. The members appreciated the fact that, although as Hon. Secretary Mr. Davison had a lot to say, he always said it in very few words, and his reports were most concise.

Mr. C. R. F. THRELFALL, seconding, said it would be a difficult matter to find a better Secretary than Mr. Davison.

The resolution was carried unanimously.

Mr. E. J. FOX moved the election of Mr. Charles A. Goodall as an elective Member of the Council. After the good work Mr. Goodall had done on behalf of the Society, and particularly during the past year, said Mr. Fox, it would be presumption to do more than formally to propose the resolution.

Mr. D. MACCALLUM GIBB seconded, and the resolution was carried unanimously.

Mr. GOODALL, after expressing his thanks, said the Council had decided that day to add another to its elective Members of Council. Mr. E. J. Fox, M.I.Mech.E., had been a very hard worker for the Society, and had devoted much of his time to its service as Chairman of the Tube Section, and it was desired to secure his services in connection with other work which was under consideration. Therefore, Mr. Goodall proposed the election of Mr. Fox as an elective Member of the Council.

Mr. FRANK WEST seconded, and the resolution was carried unanimously.

Mr. FOX expressed his thanks for the compliment paid him, which, he said, was quite unexpected.

On the motion of Mr. HARRY J. DONKIN, seconded by Mr. CHARLES A. GOODALL, the following were re-elected elective Members of the Council:

Mr. R. B. Hodgson, M.I.Mech.E.

Mr. H. M. Thornton, J.P., A.M.Inst.C.E., M.I.Mech.E.

Mr. R. J. Milbourne, J.P., A.M.Inst.C.E.

Mr. Frederick C. Tilley, M.I.Mech.E.

RE-ELECTION OF AUDITORS.

On the motion of Major RICHARD MILES, seconded by Col. E. A. WILSON, Messrs. Cash, Stone, & Co. were unanimously re-elected Auditors to the Society.

VOTE OF THANKS TO THE COUNCIL

Mr. THOMAS A. BRADDOCK, moving a very hearty vote of thanks to the Council for their services during the past year, said that the report indicated the wide range of matters of interest and importance that had had to be considered during the year, and the members appreciated how satisfactorily those matters had been handled, and the devotion with which the Council carried out its work.

Mr. B. B. WALLER seconded, and the resolution was carried with acclamation.

Mr. GOODALL responded on behalf of the Council.

VOTE OF THANKS TO HON. SECRETARY, HON. TREASURER, AND SECRETARY.

Mr. GOODALL, proposing a vote of thanks to these Officers, said that, however good the Council might be, unless there were good men looking after detailed matters, a body such as this would not be very successful. The Society had been blessed since its inception with a very good Secretary in Mr. Griffiths who kept everybody, including the President, up to scratch. Dr. E. W. Smith had served faithfully as Hon. Treasurer for three years, and was retiring, not because the Society wished him to do so, but because it was necessary that he should, his time of office having expired. He had been a source of strength, especially in connection with the raising of the Society's Special Fund. Mr. Davison, as Hon. Secretary, had also served the Society well.

Mr. FRANK WEST, seconding, emphasized that a great deal of good work was being done quietly by the Officers concerned that was not fully evidenced in the reports; but the whole Council, and particularly the Chairman, appreciated the large amount of responsibility they carried.

The vote of thanks was accorded with acclamation.

PRESIDENTIAL ADDRESS.

Viscount CECIL OF CHELWOOD then delivered his Presidential Address, which will be found on other pages of this issue.

VOTE OF THANKS TO THE PRESIDENT.

Sir ARTHUR DUCKHAM, K.C.B., G.B.E. (Past-President), proposing a very hearty vote of thanks to the President for his valuable Address, said he felt very strongly on the question of co-partnership, because he was a South Metropolitan man, having served his time there, and had seen many evidences of the value of co-partnership. He urged the Council to consider how the greatest possible publicity could be obtained for the President's Address, so that it could be brought to the attention of all engaged in industry, in order that it might help them to handle the present controversies. It seemed to him that to-day, both nationally and industrially, they had not a true and proper sense of economics. The politicians liked to reduce taxes because that made them popular, and they could obtain more votes, and they hated to increase taxes because that made them unpopular and they might lose votes. But they did not consider the effect of taxation on industry. It was not realized by many that the wealth of the country was not drawn from an inexhaustible well. Our wealth must be earned, and if taxation amounted to more than the wealth that remained after the necessities of life had been provided, then there was no hope for the further development of the country to any extent. Further, one realized and sympathized with the ideals of the trade union movement—to obtain a square deal and better consideration for the workmen—but he believed that even the trade unionists realized that they had achieved their purpose; they were getting for the workmen as much as industry could afford to pay, and in some cases the workmen were getting a rate of wages rather higher than industry could afford to pay. He felt, however, that the trade unionists did not appreciate the economic aspects—that if any further payment were to be obtained for their people it must follow increased and better production. Their chief care was not that of the individual workman, but the prosperity of industrial undertakings. Their strength was sufficient to ensure that they would obtain their proper share of that prosperity. Of that there was no doubt; but they could not go ahead, and they could not hope to get back to prosperous times unless those connected with labour movements realized that the workers were integral parts of industry, and that only by their assistance could better conditions be attained. He would not venture to refer to the problem of tariffs, but in view of the bad times that were upon them, and their ever-increasing unemployment, if any body which was strong enough came forward with a plea for protection, or safeguarding, or anti-dumping, or whatever one might call it, although the plea might be specious to a real economist, there would be the greatest difficulty in withstanding such a plea in this country. They had all to consider their position when an appeal such as that which is being put forward at present was made. One could not but sympathize with the Government at the present time, with the position of affairs in this country growing worse; but it was to be hoped that the present position of affairs would stimulate them to take measures to bring about a better state of production. All should be prepared with some definite proposals. The President had helped them to consider the question, and he was certain that the problem discussed would be a vital one in the future. The members of the Society felt that the President had paid them a great compliment in having taken so much trouble and having given so much time and thought to his Address.

Alderman FRED WEST, C.B.E., J.P., M.I.Mech.E., seconding, said he could conceive of no more suitable subject to bring before the manufacturers and contractors in the gas industry than that of industrial relationships. Although the President had laid claim to the title of "onlooker," he had claimed, at the same time, to have made a very close study of industrial conditions, and, in the light of his world-wide knowledge, he had been able to give the matter his considered judgment and to make some very valuable suggestions. The greatest difficulty which employers had to encounter to-day was the suspicion of the workpeople with regard to suggestions for bringing them into closer touch with the organizations in which they were employed. The suspicion with which they ap-

proached the overtures of the employers frequently prevented the best results being obtained. In Manchester a very considerable amount of attention had been given to the improvement of industrial relations and the creation of a better atmosphere. In 1919 there had been formed an unofficial and informal body, which was really an Industrial Council, comprising employers, trade union officials, managers, foremen, and workpeople, who met from time to time during the winter months and discussed the most difficult problems of the day, and he claimed that, by thus establishing closer touch, they had brought about a better understanding between the trade unionist and the employers, and had given them a greater appreciation of each other's difficulties. In his own concern he had endeavoured to remove that dividing line, which was too evident in many organizations, between the office staff or the management and the workpeople. If that line of demarkation could be broken down, and the workpeople be encouraged to take greater interest in the difficulties of industry, and if the employers explained their problems and difficulties, they would find the workpeople helpful and appreciative. At his own works there had been a Works Committee for a good many years, and he was satisfied that as the result of that the atmosphere in the works was better to-day than it was in pre-war days. The Committee was established in the year immediately after the war, so that he had had a sufficiently long experience to enable him to come to a conclusion with regard to the effect of taking the workpeople into one's counsels. He believed that if the workpeople were told from time to time the position of the undertaking's contract book or order book they were likely to take greater interest in the work as a result, bearing in mind that the "skeleton in the cupboard" to the workpeople was unemployment; if the workmen knew that their firm had two, three, or six months' work ahead they would give their work much better attention, and there would be a better feeling than if they were kept in complete ignorance as to the position of the firm. Finally, Alderman West assured the President that his Address contained much food for thought, and that the members of the Society would study it with great advantage to themselves.

Prof. Arthur Smithells, C.M.G., F.R.S., D.Sc. (Past President), supporting the vote of thanks, said that the Address emphasized how enormously the Society gained by going afield for its Presidents. There were some exceptional cases—he was speaking as a Past-President—[laughter]—but the present occasion was one for rejoicing. He was delighted to hear Sir Arthur Duckham emphasize the importance of giving the Address far greater currency than it would get in gas circles alone; he hoped sincerely that that would be done and that the Address would prove to be of great advantage to the country, at a time when it needed all the aid it could get.

The vote of thanks was accorded with acclamation.

The President, responding, thanked the members very warmly for their great kindness to him. He had felt extremely nervous about speaking on industrial subjects to a Society such as this, the members of which knew, or had forgotten, a great deal more than he had ever known on such subjects. However, it was one in which he had taken a great deal of interest for a great many years past, and he earnestly hoped and believed—because he was an optimist—that something of the nature to which he had alluded would prove to be the solution of their difficulties in the future. The President also took the opportunity to congratulate the Society upon having secured as the new President one of the ablest men in public life, and one who, he felt certain, would prove to be an admirable President.

The meeting then closed.

ANNUAL DINNER.

Viscount Cecil again presided at the Annual Dinner, Mr. Frank H. Jones, M.Inst.C.E., being on his right, and Mr. Charles A. Goodall (Immediate Past-Chairman of the Council) on his left. There were also present Major James Milner, Mr. Frank West (Chairman of the Council), Prof. Arthur Smithells, C.M.G. (Vice-President), Mr. Samuel Cutler, Alderman F. J. West, C.B.E., Mr. Charles S. Shapley (President, Institution of Gas Engineers), Mr. H. D. Madden and Mr. John Terrace (Past-Presidents, Institution of Gas Engineers), Mr. Charles Clare, Dr. E. W. Smith, Mr. H. M. Thornton, Mr. W. E. Price (Hon. Secretary, Institution of Gas Engineers), Mr. J. B. Forbes Watson, Mr. R. B. Hodgson, Mr. Cyril G. Davis, and Mr. Frederick J. Gould.

Apologies for their inability to attend were received from: The Most Hon. the Marquess of Londonderry, the Right Hon. J. H. Thomas, M.P., Lord Privy Seal; the Right Hon. William Graham, M.P., President of the Board of Trade; the Right Hon. J. R. Clynes, M.P., Home Secretary; the Right Hon. Lord Merrivale, His Grace the Duke of Sutherland, the Right Hon. Lord Weir of Eastwood, the Most Hon. the Marquess of Hartington, M.P., the Right Hon. Lord Melchett, F.R.S., the Right Hon. Lord Riddell, Sir Robert Hadfield, Bart., F.R.S., Sir Dugald Clerk, K.B.E., F.R.S., Sir Arthur Duckham, K.C.B., G.B.E., Sir David Milne-Watson, LL.D., D.L., Viscount Ednam, M.C., D.L., Prof. Harold B. Dixon, C.B.E., F.R.S., and Sir Alexander Walker.

Co-Partnership in the Widest Sense.

Mr. Frank H. Jones proposed "The Society of British Gas Industries," with which he coupled the name of Viscount Cecil. In a tribute to the President, he said that, by enlisting his aid, the Society had been able to do something which some other people in the gas industry had wanted to do years ago. If those other people in the industry had been able to prevail upon him as the Society had done they would have benefited very much, as undoubtedly the Society had benefited during the past year. In those earlier days, however, he had had much more serious things to do, and everyone knew how very well he had done them. He had been connected with the gas industry for a long time, and, although he had said that he did not know very much about it, Mr. Jones ventured to say that he knew a good deal about it. Recently he (Mr. Jones) had had occasion to refer to some evidence concerning a Bill which was in Parliament some years ago, and the name of Lord Robert Cecil had appeared very frequently throughout, on the side of Mr. Jones' Company—and very much to the benefit of that Company. He had always taken very great interest in that Company—it was George Livesey's Company—and had been one of the greatest supporters and friends of co-partnership from its early days. He had done much more for it than had appeared in the Press, for he had used his persuasive voice privately as well as publicly on its behalf, and very much to its benefit. He (Mr. Jones) was a great believer, and was very much wrapped up, in co-partnership, as were all his companies. The co-partnership as applied in the ordinary gas companies' undertakings was a co-partnership between the shareholders and the workers and the consumers; but he personally was of opinion that a little more co-partnership than existed at present in the gas industry as a whole would not be a bad thing. The gas industry had been described as consisting of so many component parts, and he supposed it did in a way; but all those parts were essential. Just as a locomotive was not of very much use if the cylinders or the funnel were left out, so the gas industry could not

prosper without all its component parts, and he urged that there should be more collaboration between the different parts of the industry. He did not suggest that there was a major part or a minor part; the men who made and sold the gas, the men who made the plant, the men who made the measuring instruments, and so on, were all necesary to the industry as a whole. The President, in his Address, had dealt with the theme of co-partnership in the gas industry, and the industry might with advantage go a little further along the lines he had indicated.

Discussing progress in the gas industry, Mr. Jones said he had the opportunity of visiting a great many works and of seeing the apparatus in use—from the gasholders down to the cocks by which the gas was turned on and off—and he had formed the definite opinion that the plant and apparatus produced for the gas industry was better than it use to be. He did not wish to mention names; but there were many firms who were trying to produce scientifically the plant and apparatus required, whether it was the latest tankless gasholder, or the smallest boiling ring, or the shovel with which the coke in the works was handled. That was a step in the right direction. Further, he believed that co-partnership had resulted in the improvement, not only of the work done, but of the working men themselves; he did not believe the industry would get the results it did get if the men were not of a higher standard of morality, a higher standard of knowledge, and a higher standard of education than they had been formerly, and he hoped that the principles of co-partnership, and the encouragement of the men to become really good craftsmen would be pursued further, for it would pay many sections of the industry to pursue those principles very much further than they did. He was concerned with a good many companies, but there was never trouble with the workmen. Some people had said that workmen were difficult, but he would point out that when difficulties arose there were generally two sides to the picture; if one looked at one's own side only, one might think that that side was a very glowing picture; but if one looked at both sides one obtained quite a different point of view. He did not wish to moralize, but he did urge that this Annual Meeting of the Society should be the occasion for promoting the extension of co-partnership

in every shape and form into the different ramifications and lanes of the gas industry.

THE IDEAL EXPERT WITNESS.

The PRESIDENT responded. After again expressing his thanks for the kindness extended to him, he said that the toast consisted of two parts, one being the Society and the other himself; those were very distinct things. In one respect he had a great advantage over his hearers, because he knew much more about himself than they did; on the other hand, they had a great advantage over him, in that they knew much more about the Society than he did.

Coming first to that part of the toast which was the easier for him to reply to, he said Mr. Jones had recalled the time when he had had the honour of appearing as advocate for certain gas companies before Committees of Parliament—and that was fairly ancient history, he was sorry to say. However, that was a very pleasant time indeed. One of the attractions was that one was very often paid large sums of money for doing very little, while on other occasions one had to do a great deal and received a very small sum of money in return. That had given the work the charm of the unexpected. Again, many of the people who were his colleagues at that time—though not all—were very attractive. [Laughter.] They were very able men, and had many interests outside their own profession. Then there were the expert witnesses—very, very able men—[laughter]; he was going to say that many of them were very honest, but perhaps that sounded unfair. On more than one occasion, he was glad to remember, he had appeared for the South Metropolitan Gas Company, and had put the then Mr. George Livesey into the witness chair. Mr. George Livesey had been a perfectly delightful witness to examine. One merely mentioned his name and qualifications, which he confirmed, and then one listened while he delivered a lecture, which was absolutely conclusive, on the subject of the Bill being dealt with. Generally, the opposing Counsel, if he knew what he was about, asked very few questions. Then one sat down, having earned one's fee, with a very small expenditure of brain tissue, but extremely successfully. Those were very pleasant times; he (the President) had done other things since, but he did not know that he had liked any of them better. He had gone into Parliament, and had had to give up his work as an advocate, and later he had even become a Minister of the Crown; subsequently he had left that occupation, and had again become a gentleman at large—and there were great advantages in being a gentleman at large. He did not deny that there were some very attractive things about political life, but it became rather tedious and wearisome always to have to believe that one party was right and that the other two parties, whatever they said or did, were wrong—that one set of men were Heaven-sent Ministers, and the others miserable bunglers. It was rather jolly, on the other hand, to be able to pick and choose, and to be able to say that one approved of one particular action of the Government and disapproved of another. That might not be a very practical kind of life, but it had certain charms which he could not say that he neglected. Then, towards the end of his life, he had gone back to addressing committees; but they were of a rather different kind from those he had addressed formerly, for they were committees of foreigners at Geneva. The same principles, however, were to be observed in all forms of advocacy. One had first to understand, if one could—and it was not always very easy—what was passing through the minds of one's audience, whoever that audience might be, and then one had to make a speech or deliver an argument, not for one's own gratification, but with a view to convincing one's audience; one would not be able to convince them unless one first understood their real point of view and tried to appreciate it, and tried to explain to them that even from their own point of view the contention one was putting forward was right. The principles were the same whether one was addressing four members of the House of Commons or five members of the House of Lords, or six, eight, or twenty members of different nationalities, and he was bound to say that the practice he had had, with the encouragement of Mr. Jones and other friends in the Committee Rooms of the Houses of Parliament, was extremely useful to him when he went to Geneva.

VITAL ENERGY IS BEING DISSIPATED.

Responding to that part of the toast which applied to the Society of British Gas Industries, he said he did not intend to repeat the remarks he had made that afternoon concerning the organization of industry in general and the gas industry in particular. At the same time, he did not apologize for having made them, because he believed that the question of the organization of industry, in its widest sense, was probably the most important domestic question of the day. He believed that fortune and prosperity in the near future would depend on whether they were able to solve that question. If they could solve it, if they could get an organization in industry which worked smoothly and without friction, which produced the best results by enabling all those engaged in industry to do their utmost and make the best use of their faculties, then he saw no reason why all the troubles they suffered from should not disappear. Without doubt they were wasting a vast quantity of the energy expended; energy which might be diverted to the production of wealth was being dissipated in a hundred different ways. If they could make that great saving they could make such a difference to their production as would unquestionably remove an immense part, and perhaps the whole, of the difficulties from which they suffered. That was his conviction, and that was the reason why he had ventured to trouble the Society at such length in his Presidential Address. In that he had referred to certain organizations in industry which were formed, partly at any rate, for combative purposes. The Society of British Gas Industries, however, was not of that kind. It existed in order to assist the industry and make it more effective, to make it—by research and in a hundred other ways—work better than it does, and to increase its prosperity. That object was wholly good; nothing could be better. It was one of the objects which they ought all to have in view, and he was convinced that if all industrial organizations were of that type we should indeed be in a very much better position than we are in at present. In conclusion, he said the members would forgive him if he did not attempt to deal in detail with a subject of which they knew so much more than he did. He could only thank them again for their kindness to him, and assure them from the bottom of his heart how deeply he wished prosperity and increased power to this organization, and how proud he was to have been connected with it.

Alderman F. J. WEST proposed the toast of "The Gas Industry," coupled with the name of Mr. C. S. Shapley (President of the Institution of Gas Engineers). After a humorous opening, in which he made reference to the attempts made by his companions during dinner to steal the notes which he and Mr. Shapley had prepared for their speeches, he went on to refer to the peculiar and difficult problems confronting the gas industry at the present time, and to say that he was optimistic enough—as he believed his hearers to be—to think that if those in the industry faced the problems with boldness and with concentrated effort they would be solved. Not the least of the problems of the gas industry, and which it was necessary to combat, was the trend of public opinion which suggested that the industry had had its day and was being superseded. Unfortunately, the public frequently arrived at their conclusions too hastily. To illustrate the unfairness of so doing, he related a story concerning a boy who, having been sent home from a party on a previous occasion for using bad language, was told by his mother, when he was leaving for another party, that if he were sent home again he would be spanked and put to bed. The boy had returned home a short time after leaving and was spanked and put to bed. Later, however, when admonished by his father and asked what he had said to warrant his being sent home, he replied that he had said nothing at all and that the d——d party was not to be held until the following day. Without sufficient evidence, continued Alderman West, the public had reached a conclusion with regard to the gas industry which its wonderful past and its present progress did not justify in any way; nor did the public appreciate the contribution which the gas industry had made to our industrial and domestic life. To some extent it could be said that what he had termed on many occasions the colossal

ignorance of the public with regard to the gas industry was due to a desire for something new, something novel, and perhaps more spectacular, and was due also, perhaps, to too much State aid to its great rival. At the same time, he was satisfied that even those connected with the gas industry were to blame to some extent, in that they had not been sufficiently active and aggressive in impressing upon all with whom they came into contact how important an industry it was, what a wonderful contribution it was making to the development of industry, and what a help it was giving in the solution of domestic problems. During a trip to South Africa last year he had applied himself to the task of preparing a case for gas in a large town in which no gas undertaking existed, and had been surprised when he had realized what a wonderful case could be presented. Its world-wide development and prosperity—the prosperity it had made and was making to-day—was almost a romance, and if the whole of the facts were collected and tabulated they constituted a triumph of which the industry had no reason to be ashamed. There were many satisifying evidences, however, of the fact that organized bodies in the gas industry, and gas undertakings and individuals, were alive to the importance of the right sort of propaganda, and an active and aggressive policy. In associating with the toast the name of Mr. Shapley, the President of the Institution of Gas Engineers, he congratulated Major Milner, M.P. (a Leeds man), on the fact that Leeds had been selected by the Institution for its annual convocation, and congratulated Leeds on the fact that the Institution had elected Mr. Shapley as its President. He anticipated that the meeting which Mr. Shapley had arranged, to be held in Leeds in June, would redound to the credit of the gas industry, and would result in its being placed before the public as it should be placed before them. Again, he congratulated Mr. Shapley on being the first President since the Institution's Charter was granted, a Charter which, from the point of view of the members of the Society of British Gas Industries, suggested a widened basis, which he felt sure would tend to co-ordinate the various interests in the industry in a manner which would reflect itself in a policy and a programme which would benefit the industry generally. They all looked forward to a successful meeting in Leeds, and felt sure that under Mr. Shapley's Presidency of the Institution the industry would receive

the advertisement and testimony it deserved. On behalf of the Society and its guests, Alderman West wished Mr. Shapley a very successful year of office.

Mr. Shapley's Warning Note.

Mr. Charles S. Shapley, responding, said he did not wish to strike a discordant note, but he did wish to strike a note of warning. The gas industry was not down and out by any manner of means, but if the industry was to progress as he wished to see it progress, those responsible for its management were not going to be satisfied with increases of 2 or 3 p.ct. in the sale of gas. Some undertakings had reached a state of absorption with regard to the erection of plant. What he looked forward to in the gas industry were increases of 25 or 50 p.ct. in the sales of gas. The undertakings must work for that, so that they would have to go to the manufacturers of plant for new retorts, washers, purifiers, and so on. He was not saying that to create favour with his hosts, but was saying it for the benefit of the industry. He had been in the industry all his working life, having started as a lad from school, and through the kind offices of his friends occupied his present position. [Laughter.] It must be appreciated that the gas industry was snowed under by antiquated legislation, and, with the help of the Society of British Gas Industries, that legislation must be removed—and removed at once. In his own town he had experienced a very adverse year, due to no fault of the management—he said that with every reserve, but it could be defended without doubt. There was a very live and very well-managed electricity undertaking in Leeds; it had already arrived at the stage which would be reached by electricity supply undertakings generally when the grid system became operative throughout the country, in eight or ten years' time. Gas undertakings in remote parts of the country could look forward to competition such as he and some of his friends on the north-east coast were experiencing to-day against electricity at a very low price, and he urged them, therefore, to take the warning and to endeavour to secure the help of the members of the Society of British Gas Industries, who could do a great deal to assist the gas supply industry. They had the ear of politicians in Parliament and locally, and those were the men into whose ears it was necessary to drum the virtues of the gas industry, which were not generally understood. Gas was a wonderful commodity. When he stated that the basis price of gas in Leeds was 3s. 9d. per 1000 c.ft., which was equivalent to electricity at 0·3d. per unit, it would be appreciated that the gas industry was not down and out by any manner of means. Other undertakings were selling gas at an even lower price, and he urged that in the future it would be necessary to talk of the price of gas in terms of price per unit, the unit being comparable with the unit of electricity. Referring further to the unfairness of electrical competition, he said he had been told by an ex-M.P. of a recent experience in Buxton, where the demand for electricity had outgrown the capacity of the generating plant, and where it was desired to instal another Diesel engine as a prime mover for generating purposes. On application to the Ministry of Health for the necessary borrowing powers the authorities at Buxton were told that they would have to apply to Macclesfield for a supply of electricity in bulk. It had been found, however, that the cost of obtaining electricity from Macclesfield was higher than the cost of generating it by means of the Diesel engine in Buxton. The authorities at Buxton were then asked to apply to Stockport for a bulk supply, but again the position was the same. The outcome of it was that the Electricity Commissioners arranged for the supply of electricity from Macclesfield to Buxton, and paid to the Buxton Corporation the difference between the cost of generating at Buxton and taking a bulk supply from Macclesfield. That was the sort of competition the gas industry could not stand; it was not fair or equitable, and the industry must enjoin those who represented its interest in Parliament and locally to see that that sort of thing was discontinued.

In a further reference to the necessity for dealing in gas in terms of heat units, he said the Leeds gas undertaking was producing 1,490,000 units, whereas the electricity undertaking in the city produced only 462,000 units. Thus, the gas undertaking was turning out nearly four times as many heat units as was the electricity undertaking. Finally, he made another appeal for co-operation between all sections of the industry, and urged all to talk gas on every available opportunity, in order to impress upon the public that gas could do all that electricity could do, and in very many instances could do very much better. He also paid a tribute to Alderman West, and acknowledged the great work which the Society of British Gas Industries had done for the advancement of the industry, without which the industry would not have achieved its present position.

Vice-Presidents—and Guests.

Prof. Arthur Smithells (Vice-President), who proposed a toast to the guests, said he supposed he had been asked to propose the toast in his capacity of a Vice-President of the Society, and he took the opportunity to say that he was proud of his Vice-Presidency to a degree beyond his powers to express it. As to the duties of a Vice-President, he said that so far as his experience went—and it was a long one—they amounted to little more than the occasional exercise of one's digestive organs, so that he felt a certain measure of satisfaction on this occasion in doing something towards earning his keep. [Laughter.] He hoped that the Society's guests had been provided with a list of the Vice-Presidents, in order that they might know the sort of company he kept. Whenever he looked at that list he was reminded of a friend of his who was very eager for the reform of the House of Lords, though he could not remember the exact particulars of his friend's scheme; in fact, the only point that he did remember very clearly was that his friend, in his desire to enlist his sympathy, had assured him that he was to be a member of the reformed House. [Laughter.] However, he must say that when he looked at the list of Vice-Presidents of this Society he did think that, having regard to the variety of interests the gentlemen included therein represented, and their eminence in their several walks of life, they constituted something like a skeleton crew for the particular ship of State he had mentioned. He did not say that all had attained the high level of the great servant of great causes that had honoured the Society during the past year, but they were a body of men who had helped very greatly to make the Society what it had become, and what it had been so well described as being by its retiring President.

The guests of the Society, to all of whom Prof. Smithells extended a hearty welcome, included Mr. H. E. Jones, Major James Milner, M.P., Mr. C. S. Shapley (President of the Institution of Gas Engineers), Mr. J. B. Forbes Watson (Director of the National Federation of Employers' Organizations), Mr. C. Le Maistre (Director of the British Engineering Standards Association), Mr. John Terrace and Mr. H. D. Madden (Past-Presidents of the Institution of Gas Engineers), Mr. H. E. Bloor, Mr. C. Valon Bennett, Mr. Thomas Carmichael, Mr. Frank Durrant, and Mr. J. Wesley Whimster (Members of the Council of the Institution), Mr. W. E. Price (Hon. Secretary of the Institution), Mr. H. C. Smith (Vice-President of the Southern Association of Gas Engineers and Managers), Mr. W. M. Carr (Vice-President of the Manchester District Association of Gas Engineers and Managers), and Mr. Hicks (Secretary of the Amalgamated Union of Building Trades Workers).

There was no Cabinet Minister present, continued Prof. Smithells, and, therefore, he was baulked of the opportunity which speeches of this kind sometimes gave, of telling Cabinet Ministers what one thought of them. About a fortnight ago, however, in Leeds, he had had the opportunity of proposing the health of Mr. Arthur Greenwood, a former student of the University of Leeds and now Minister of Health. In the forthcoming week—although he did not think he could be called upon to perjure himself on that occasion—he would be in the company of Mr. Philip Snowden. [Laughter.]

Sometimes he had known people who were charged with proposing a toast of this kind to go through the list of guests and give a short notice of their curricula of life, but he did not propose to do anything of the sort. He knew some of the guests very well indeed—[laughter]—and could say a great deal about them, but would not do so, for reasons that appeared obvious. Their presence, however, illustrated the close union which existed between the Society and the other bodies connected with the great gas industry, and it did

adumbrate, as had been pointed out already, the possibilities of that closer co-operation which had been referred to in the President's Address.

The Limelight on Leeds.

Before concluding, he would victimize to a small degree the Honourable Member of Parliament (Major Milner), who was to reply to the toast, and mention of Major Milner directed his thoughts at once to the city of his adoption—Leeds. It was really dangerous to lead him on to that topic, having regard to the length and variety of his connections with that city. When he had been in that city he had taken the opportunity, especially in his early days, of pointing out occasionally its defects and deficiencies, and the things which needed to be done. He must confess, however, that whenever he visited it in later years and saw the life that existed there, the improvements that were being effected, and the spirit that animated the whole city, he felt that it might fairly claim to be among the foremost of the great cities of this Kingdom. He was particularly glad to be able to say that, because Major Milner, when a member of the City Corporation, had taken a very active part in promoting improvements in the city; indeed, he had been Chairman of the Improvements Committee, and had been removed from that post only by the rule which appeared to prevail, that a Member of Parliament could not at the same time be a member of the City Council. Leeds was the home of the President of the Institution of Gas Engineers, and the venue of the meeting of that body this year; but he had in mind particularly that it was the city which the gas industry had trusted as the place for its earliest research work—a city where existed permanent memorials to those great leaders of the industry, George Livesey and Corbet Woodall, and a place where so much of the happiness of his own life had been gained in connection with the gas industry. Major Milner had begged him to say as little as possible of the great services which he (Major Milner) had rendered to his country in times of war, and the great services he was rendering in times of peace. He was Member of Parliament for a division of Leeds which he (Prof. Smithells) knew very well, for he had visited it from time to time in his early life and had tried to propound the importance of a better appreciation of science on the part of the community, especially in relation to industry, a theme which he would continue to propound until the end, as it was a belief which was very deep in his mind and heart. It was a matter of

special pride to him that Major Milner was an old student of the University of Leeds, one of the best vintage of a modern university, and one of whom Leeds was exceedingly proud.

LEGISLATIVE RESTRICTIONS STILL NOT REALIZED.

Major JAMES MILNER, responding, said he was considerably embarrassed, not only by reason of the kind remarks that had been made by Prof. Smithells, but also by reason of the fact that not only had the Society entertained its guests royally and lavished its kindness and hospitality upon them, but it had then suggested almost that its guests had conferred a favour upon it by attending. He personally had very special pleasure in being present. In the first place, it had "warmed the cockles of his heart" to hear so much said about Leeds. Secondly, he had been most happy in the company he had enjoyed. Seated on his left was his old friend, Mr. Charles Goodall, the immediate Past-Chairman of the Council of the Society, who was not only a most competent business man, but one who added distinction to any office he undertook. Those who knew him had not the slightest doubt that he had added distinction to the office of Chairman of the Society's Council. Then, seated on his left, was Prof. Smithells. When he was an undergraduate at Leeds University—and he was very small fry in those days, whatever he might think himself to be at present—he had looked up to Prof. Smithells, as, indeed, all old boys of the University do to-day, not only as a very great scientist, but also with the very deepest affection. Therefore, it had been a very happy experience to recall his old associations in Leeds. Discussing the problems of the gas industry, he said he was not, and never had been, one of those who held that either electricity on the one hand, or gas on the other, was superior to its rival; he looked upon them both, and, in fact, used them both, as complementary things, and, knowing as he did a little of the advantages of both, he saw no reason why the gas industry should not progress, and why the antiquated legislation relating to it should not be altered or removed. He had not been aware previously that there were such legislative limitations on this industry as appeared to prevail, and he imagined that that was probably true of a good many of our local and national legislators. Therefore, he hoped steps would be taken to bring home to them the difficulties of the position, because admittedly the industry employed a very great number of men; it had a good deal to do with the basic industry of coal mining; and it produced a great many products which were necessary to industry.

Finally, Major Milner assured the Society that its guests were honoured to be present, and on their behalf he wished the industry and the Society every prosperity in the future.

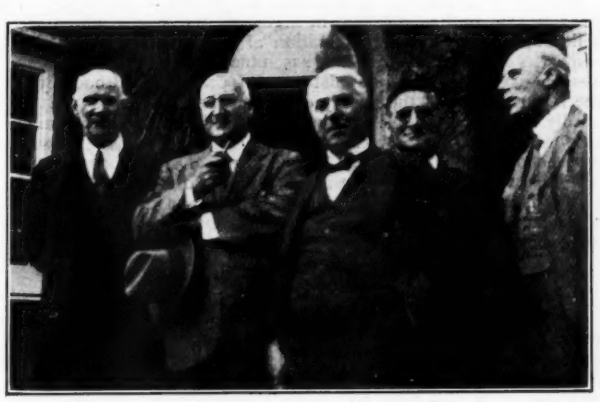
Midland Association of Gas Engineers.

Spring Meeting at Bromsgrove.

The Spring General Meeting of the Midland Association of Gas Engineers and Managers provided a pleasant day at Bromsgrove on Thursday, May 15. The members were received by their President, Mr. A. Bird, who is the Engineer and a Director of the Bromsgrove Gas Light and Coke Company. Following the assembly at the works, the party were given a hearty welcome by the Chairman of the Company, Mr. John Green, who, although in his 90th year, is still active and alert.

Following an inspection of the works the company were entertained at luncheon by the Chairman and Directors of the Company at the Golden Cross Hotel, Bromsgrove. The chair was taken by Mr. John Green, and the other Directors of the Company present were Mr. F. Fellows, Mr. Frank Holyoake, Mr. Arthur Chappel, Mr. J. Hingley, and Mr. Bird.

Mr. HUBERT POOLEY (Leicester) proposed the toast of the Bromsgrove Gas Light and Coke Company. He pointed out that the Bromsgrove undertaking was owned formerly by two men who succeeded in producing during 1868 five million cubic feet of gas. In the following year the present Company purchased the works and plant for £5000. The Company had, therefore, been in existence for sixty-one years, and during the whole of that time the present Chairman, Mr. John Green, had been one of the Directors. He should think that this wonderful service must constitute a record, and he, but more particularly the Company, must be congratulated. The Company had also been fortunate in that they had had the whole-hearted and able services of their President as Engineer and Manager for the long period of thirty-six years; and these gentlemen, with the co-operation of the other members of the Board, had succeeded in increasing the make of gas to no less than 133 million c.ft. of gas during the last financial year. The percentage increases in output in recent years had been very high. The capital outlay must have been very carefully watched, for at present it stood at approximately only £430 per million c.ft. sold; and taking into consideration the last sixteen difficult and costly years, this was a wonderful achievement. Bromsgrove's street lighting was so good that strangers to the town had been known to plead its brilliance as an excuse for failing to observe the failure of their own car lights. The Company was a model for many of them in the conduct of its business, with a low capital, with a moderate priced commodity, and with its works and plant maintained in excellent order; and there was strong evidence that its work and its service was appreciated by the community which was so well catered for by it. It had been clear to them that morning, too, that the Chairman's and their President's efforts were ably seconded by the staff and workpeople. Might those relations long continue, and that singularly fortunate Company long flourish and expand!



The CHAIRMAN, in replying, pointed out that when the present Company took over the undertaking from Messrs. Dipple and Thomas it was a very small concern. As mentioned, the make was 5 millions and the valuation £5000, so that the capital was £1000 per million make. At the present the capital, as stated, was £430 per million. The growth of the Company, although continuous, was never very rapid. About four years ago electric light was introduced into Bromsgrove, and at the annual meeting of the Company he remarked that there was room for both. Experience had proved that he was not far wrong. It was a remarkable fact that, although they had taken all the shop lighting, the rate of increase in the demand for gas had been higher than ever before, and 1929 beat all previous records. "As time goes on," said Mr. Green, "we may probably find that electricity will become a greater competitor, but we rely upon the improvements that science and research can bring about to enable us to hold our own. We have every confidence in the three great pioneers in the gas industry to enable us to hold our own against all competition. I refer to the Gas Light and Coke Company, the South Metropolitan Gas Company, and the Bromsgrove Gas Company." [Laughter and applause.]

Mr. R. J. MEIKLEJOHN (Rugby) proposed the toast of "The Town and Trade of Bromsgrove," and pointed out that Bromsgrove was famous for its architectural metalwork, which was the main output of the Bromsgrove Guild. The products of the workshops of the Guild were varied, and they were famous for high-quality workmanship.

Mr. W. C. E. WESTON (Chairman of the Bromsgrove Urban District Council) responded. He congratulated Mr. Bird on the high position he held in the Association that year, and he also congratulated the Association on having such a man in that position. ["Hear, hear."] He had known Mr. Bird practically the whole time he had been in Bromsgrove, and he was a good-spirited "John Bull"—a man whose business ability was only equalled by his geniality.

Mr. F. FELLOWS proposed "The Midland Association of Gas

Engineers and Managers." He did so, he said, with the greatest pleasure, because he was indebted to them personally, having so much invested in gas. His experience of about 45 years with his firm, D. & F. Fellows, Ltd., in the purchase and sale of coal and coke had influenced him to watch the business side of the gas industry, and he was pleased to note that their engineers and managers had effected great improvements. "If," he said, "you continue in the future as in the past, gas should not only hold its own, but be able to snap its fingers at electricity." The Association, he continued, had many worthy members. He could mention the names of many, but he would only mention their President, Mr. Bird, who was not only Engineer, but a Director, of the Bromsgrove Gas Company. He had been with them many years, and they knew his sterling worth and character. He had a very worthy son who was now his assistant, and promised well.

Mr. Bird, replying, thanked the Company for inviting the members of the Association to the works, and for the hospitality which had been extended to them. They were pleased to know that such an interest was taken in the Association. Those meetings were of great help to the gas industry. He would like to thank the members for turning up in such large numbers that day to support him. He was also very grateful for what had been said in reference to his son.

Subsequently the members of the Association proceeded in motor omnibuses to Malvern, the Wyche Cutting, and the British Camp.

Gas for Broadwey and Upwey.

Inaugural Ceremony.

Soon after 3 o'clock on Friday, May 9, a supply of gas was released to the residents of the two parishes of Upwey and Broadwey by the Weymouth Consumers' Gas Company. The inauguration ceremony was performed by Mr. Mark C. Frowde, Chairman of the Board of Directors of the Weymouth Consumers' Gas Company.

Mr. F. Blanchford, a Director of Messrs. Willey & Co., Ltd., Gas Engineers, of Exeter, in asking the Weymouth Gas Company's acceptance of the holder, which has been erected in connection with the extended supply, said it had been completed under the supervision of, and he hoped to the satisfaction of, the Engineer (Mr. John T. Joyce). He hoped it would prove satisfactory.

On behalf of the Directors of the Weymouth Company, Mr. Frowde said he had pleasure in accepting the holder which, he believed, met with the appreciation of their Engineer in every respect. The gathering had assembled to celebrate a very auspicious occasion in the history of Upwey and Broadwey—the inauguration of the supply of gas to these villages. "It is hardly necessary for me to cover the ground as to the remarkable effects this may have on these villages," Mr. Frowde proceeded. I may, however, be pardoned for stating one of the results is bound to be a great increase in building in the district, and consequently increased rateable value, and increased value of property to those who are fortunate enough to own some in this lovely neighbourhood.

Comfort at Low Cost.

To the working man who is only a tenant of the cottage which he occupies, the boon will be inestimable. He will now be able to have a cup of tea before he goes out early in the morning, and a cooked meal when he comes home at night, provided at a cost that will seem absolutely miraculous. He will, owing to the illuminating powers of gas we supply, be able to read in the greatest comfort, and without the least interference with his eyesight.

The supply of gas to these villages has been a fairly big task for a small company such as the Weymouth Consumers' Gas Company, and I should like, with the permission of Messrs. Willey & Sons, the builders of the holder, to give a few details regarding not only the holder, but the work also entailed by the supply of gas to these villages.

The gasholder is of the single-lift spiral-guided type, of a capacity of 90,000 c.ft. of gas. Provision has been made for an additional lift to be added, should the district be developed sufficiently to justify it.

The general dimension of the gasholder is 64 ft. diameter by 28 ft. deep, and the tank 68 ft. diameter by 28 ft. 6 in. deep. The pressure of gas given by the holder is 80 tenths of an inch when full. The materials were supplied and erected by Messrs. Willey & Co., of Exeter. The foundation for the holder was carried out by the Company's staff, and consists of a concrete raft reinforced with heavy gauge expanded metal, the material excavated for the foundations being 1000 tons.

The laying of the mains has been carried out entirely by the Company, and was commenced on Nov. 20 last. In all, over three miles of steel mains have been laid to date.

Considering the remarkably wet weather we have experienced, combined with other difficulties, I think Mr. Joyce and Mr. Verity are to be congratulated on the expeditious manner in which the work has been carried out.

Although until to-day, continued Mr. Frowde, no gas was available, the Company had already received over 170 applications for a supply. Of this number 111 houses had been fitted, and would be able to use gas from that day. In addition to ordinary householders, the Company had been successful in securing the public lighting for Upwey. One and all might rest assured that the Company would do their utmost to see that the supply was efficiently carried out. They also hoped to be fortunate enough to secure the public lighting of Broadwey, and they felt justified in saying that it would be for the benefit of the village.

The simple ceremony of turning on the supply of gas having been performed by Mr. Frowde, the company present adjourned to the Railway Hotel where, as the guests of the Directors of the Weymouth Company, they were provided with refreshments.

Modernizing the Country Districts.

In the unavoidable absence through indisposition of the Chairman of Weymouth Rural District Council (Mr. Wm. C. Jesty), the Clerk (Mr. Symes) responded to the toast of Weymouth Rural District Council and the Upwey and Broadwey Parish Councils. The speaker thought they were fortunate in having a company like the Weymouth Consumers' Gas Company, who were prepared to bear the burden of the cost of providing gas for the people of the villages, without throwing any expense on the rates. For that reason the Weymouth Rural District Council were extremely grateful to the Gas Company. That day he considered was one of the greatest events that had happened in the villages of Upwey and Broadwey for a great many years.

Mr. Percy Lovell (Chairman of the Upwey Parish Council) also responded, and said he was sure that everyone in the neighbourhood thoroughly appreciated the enterprising nature of the Gas Company. For some years past many had wondered why the parishes had not developed and why things seemed at a standstill. Now that the gas supply had been introduced he was confident that great strides would be made. Mr. Lovell recalled how the ratepayers of Upwey themselves had decided to have the streets illuminated by gas. They knew it was a constructive policy, and all they asked for was value for their money. He regarded the installation of gas in the village as one of the finest things that ever happened and that day was undoubtedly a red-letter day. The parishioners, he was sure, anticipated development to a large and extensive neighbourhood, and also hoped that the scheme would prove a success in the interests of the Gas Company.

That the Gas Company had done a great deal for Broadwey was the opinion voiced by Mr. Pegler, who responded on behalf of Broadwey Parish Council in the absence of the Chairman. Mr. Pegler hoped the enterprise of the Company would be rewarded, and that they would receive a profitable return for the money they had paid out.

The toast of the Weymouth Consumers' Gas Company was proposed by Mr. Blanchford, and in doing so he spoke of the respect with which he was treated on the occasions of his visits to Weymouth. Undoubtedly the introduction of gas would be a tremendous advantage to the two villages. Throughout the work great help had been received from the Engineer.

Tributes to Engineer and Works Manager.

Mr. Frowde thought the company could not disperse until they had praised and congratulated the Engineer upon the successful completion of the work. Mr. Verity, too, he included in the toast. On behalf of the Directors he expressed appreciation to Mr. Joyce for the time and energy he had devoted to the matter. It was not, in his opinion, a light task for a Company of their size to undertake the work. He was certain it would prove an enormous boon to the inhabitants.

In the evening the men engaged in the work were entertained to refreshments by the Directors of the Company.

Eastern Counties Gas Managers' Association.

There were many references on Friday and Saturday of last week to the charms of Dovercourt Bay, the hospitality of the Chairman and Directors of the Harwich Gas and Coke Company, Ltd., and the geniality and thoughtfulness of Mr. A. Gregory, their Engineer and Manager, who is President of the Association. The occasion was the half-yearly meeting of the Association, which was held in the Hotel Alexandra. This was preceded by an inspection of the gas-works (the main points of which were outlined by the President in his address) and of the Great Eastern Zeebrugge train ferry, the many striking features of which were closely studied.

LUNCHEON.

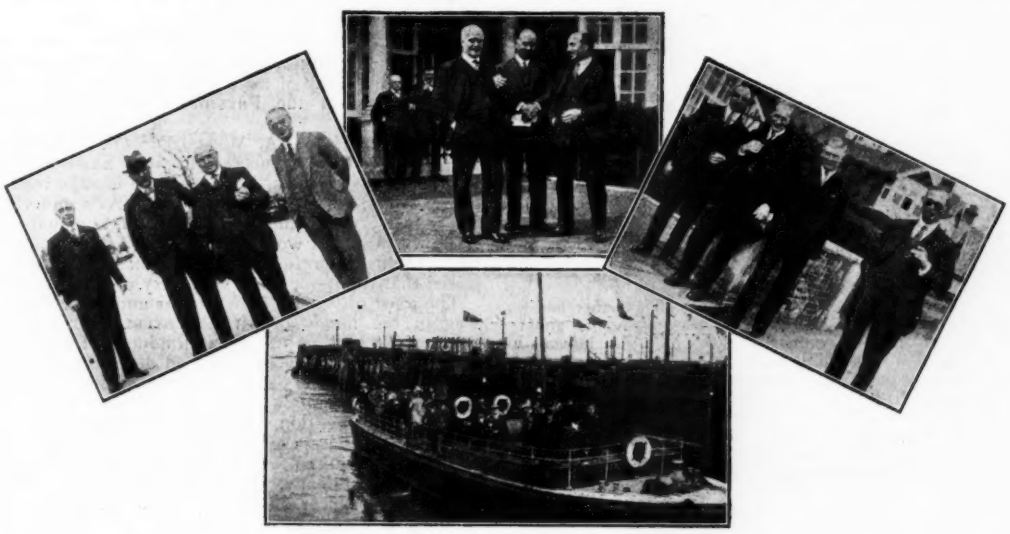
Proceeding to the Hotel Alexandra, the large party were the guests of the Chairman and Directors of the Gas Company at lunch—Mr. HERBERT J. W. JERVIS (the Chairman) presiding. He was supported by Mr. W. W. Townsend, of Colchester, who is Managing Director of the Company, and Messrs. W. C. P. Hepworth, G. Baines, and H. J. Cann (Directors). The Mayor (Mr. T. H. F. Bernard) and the Deputy-Mayor (Alderman E. Saunders) were among those present.

The toast of the Association was proposed by the MAYOR, who remarked that he was very glad, on behalf of the Borough, to welcome the visitors. He congratulated his friend Mr. Gregory on holding the position of President, which he was well qualified to fill. He (the Mayor) had been particularly struck with the very bold way in which gas had met the competition of electricity, by propaganda and advertising schemes. In reply, the PRESIDENT expressed sincere thanks to his Chairman and Directors for the cordial support they had given him. When he was invited to take office with a view to becoming President, he placed the matter before his Board, and was more than gratified to find that they heartily supported the proposal, and warmly invited the members to visit Harwich. The progress of the Association was in large measure due to such support as this.

"The Harwich Gas and Coke Company, Ltd.," was submitted by Mr. F. PRENTICE, of Ipswich, who said that, though the Company had undoubted difficulties to contend with, he felt sure that under the present able management the undertaking would become more successful than ever it had been in the past. Like Harwich, Ipswich suffered from electrical competition; but he was not at all sure that this was not for their ultimate good. It incited the gas industry to put forth every effort to make their commodity as good and cheap as possible. Lately, as they had learned from the Technical Press, there had been at Lewisham a very remarkable example of competition between gas and electricity. There a result had been arrived at which, at a time when they were hearing depressing stories on all sides, must afford them a great amount of encouragement; for in a straight public lighting test gas had been victorious. He viewed with misgiving the efforts that were being made to introduce into this country the 48-hour week. Everyone had given his blessing to it, though not everyone had adopted it; but they all wished us to do so. There was an avenue of escape for what were termed "continuous processes;" and every effort would be made to get the gas industry removed from the conditions of this Washington Convention. One of the curses of the present day was the constant interference of the Government with industry. People did not know where they were. As to rationalization, he would venture the opinion that it was an absolute fallacy to assume that greater size necessarily meant greater efficiency. But there was also another side, were they all to become mere cyphers? Was the "personal touch" to be abolished? If so, they would be banishing a very valuable thing indeed.

Responding, the CHAIRMAN expressed his pleasure to be there to welcome the members on behalf of the Board. The Harwich Gas Company was formed in 1854 under a Deed of Settlement; the original capital being £3000, with power to raise a further £2000. At that time Dovercourt was hardly existent. He himself became a Director of the Company in 1886. The profit and loss account had not shown recently the good figures which it might. In 1882 the Company's contribution to rates and taxes was £50. By 1905 it had risen to £369; while last year the figure was no less than £1786. Thus a considerable part of the effort they put into the undertaking went to meet the large expenditure of the Corporation of Harwich and of the State. He hoped that one day both the State and the Local Authorities would realize that industry could not advance so long as it was hampered by the burdens which were now imposed upon it. Accumulation of resources was essential to development; and economy should be insisted upon.

Mr. W. W. TOWNSEND, proposing "The Visitors," referred to the friendly relations subsisting between the Gas Company and the Corporation. Both realized that they had a public duty to perform. He entered a strong plea for the use of British tar on British roads, pointing out that there was no necessity whatever to employ imported material for this purpose. The DEPUTY-MAYOR, in the course of his response, urged that without the expenditure of money it was impossible to advance.



BUSINESS MEETING.

At the business meeting in the afternoon, the PRESIDENT occupied the chair.

Following upon the confirmation of the minutes of the previous meeting, a vote of condolence was passed with the widow and family of the late Mr. Norman S. Cox; and a number of letters of apology for absence were read by the HON. SECRETARY (Mr. E. F. Keable, of Southtown).

The PRESIDENT then asked Mr. H. C. Smith, of Tottenham, to accept the Past-President's medal. He said that Mr. Smith had made an ideal President, and he hoped this small souvenir would remind him of a happy time.

Mr. H. C. SMITH, acknowledging the gift, said it would certainly serve him as a reminder, if any reminder was necessary, of a very happy year of office as President of the Association. He had been admirably supported, especially by Mr. Keable, who really did all the work.

MEMBERSHIP ROLL.

The resignations were received with regret of Mr. A. W. Sumner, of Grays, and Mr. P. G. Wright, of Leeds.

Two new members were elected—Mr. G. Wright, of Lincoln, and Mr. J. E. Young, of Grantham.

Mr. J. Barton, of Peterborough, was unanimously elected an honorary member.

The PRESIDENT said the honour was well deserved. Mr. Barton was one of the two remaining founders of the Association.

Mr. J. H. TROUGHTON (Newmarket), who seconded, said Mr.

Barton was actually the oldest member of the Association. He had always had at heart the interests of the Association, which started in 1888 with a membership of 8, and which had now attained a membership of over 100. They greatly appreciated all the good work that Mr. Barton had done.

The HON. SECRETARY read a letter from Mr. Barton expressing his gratification at the suggestion to add his name to the list of honorary members.

REPORT AND ACCOUNTS.

On the proposition of the PRESIDENT, seconded by Mr. F. PRENTICE (Ipswich), the report and accounts were unanimously adopted, and a donation of five guineas was voted to the Benevolent Fund of the Institution of Gas Engineers.

EASTERN DISTRICT GAS EDUCATION COMMITTEE'S REPORT FOR 1929-30.

The HON. SECRETARY then read the following report of the Education Committee:

The Committee present to the members of the Eastern Counties Gas Managers' Association their annual report. During the year a number of students have sought and received advice and help, but the number has been relatively small having regard to the fact that the district embraces in all the whole or parts of five counties. It is, however, hoped that as the revised scheme becomes better known and understood the numbers coming forward will materially increase. The chief work accomplished this year has been the establishment of a fresh gasfitting class at Ipswich, and it has been possible to arrange for the fitters from Colchester to attend this class also. The number of fitters attending classes now stands at 55, made up as follows: Cambridge, 16; Norwich, 8; Ipswich, 11; Colchester, 10; Yarmouth and Gorleston, 10. It will be agreed that a body of men thus in process of training must, in the future, add considerably to the strength of our industry in this area. One of the Cambridge gasfitting students—Mr. H. J. Thirkettle—won the City and Guilds' Silver Medal, and money prize given by the Society of British Gas Industries.

The Committee wish to place on record their appreciation to the tutors of these classes, all of whom have been able to report excellent average attendances and keenness on the part of the men in the course of their studies. These classes could not carry on were it not for the ready support of the Education Authorities in the towns named, coupled with the facilities given for practical tuition in the workshops of the gas undertakings; and to all who have thus given so generously the Committee desire to extend their thanks and appreciation.

The Secretary has been able to attend the meetings of the Gas Education Committee in London, as the representative of this district, and can thereby assure all students that their cases receive, at the hands of this Committee, the closest possible final consideration, and everything is done by way of advice and help to assist both existing and prospective students.

Your Committee have approved the sending out of a further letter to the Engineers of all undertakings in the district asking for guidance with reference to students in their employ who desire information or help in connection with the forthcoming session, 1930-31; and it is hoped that, as a result, the numbers will come fully up to expectation.

The future of our industry depends upon the men we are training, and all who by their studies are seeking to qualify for entrance to membership of the Institution of Gas Engineers or, to improve their craftsmanship, are looking to their respective undertakings to give them all reasonable assistance, and the Committee feel sure that this much-needed help, in many cases, will not be looked for in vain.

Signed on behalf of the Committee.

A. GREGORY, Chairman.

E. F. KEABLE, Hon. Secretary.

Mr. T. V. Johns, of Lowestoft, was elected a member of the Committee, in place of Mr. E. W. Smith, of Chelmsford, who retired by rotation, and Mr. Smith was thanked for his services.

PRESIDENTIAL ADDRESS.

The PRESIDENT then delivered his address, which appears later in this issue.

Mr. W. GROGONO (Croydon) proposed a hearty vote of thanks to him. He said that the coal-handling plant they had inspected at the gas-works had struck him as being excellent. It was very simple, very cheap, and did its work very well. With regard to the use of live steam at the inlet to the purifiers, his own experience had been that this served its purpose for a time, but that finally it led to trouble. He preferred to use it, as he did now, in some form of heater. It was good to note the acknowledgment of the services of the British Commercial Gas Association, in connection with competition with electricity.

Mr. J. W. AUCHTERLONIE (Cambridge) seconded the vote, and expressed his sympathy with the President in having to face two troubles at the same time—the introduction of electricity, and the withdrawal of the naval and military units. There was no doubt they were all going to be faced with very much keener competition than in the past. Even in the larger towns, where they were selling gas at possibly half the price of Harwich, this competition was going to be felt. It was therefore up to them to adopt all possible methods of educating the public, who were very ignorant on such matters. The "B.C.G.A." would help them as much as they wished, and they should make use of that organization. But, of course, the "B.C.G.A." had no money to spend locally; they must do this themselves. His own undertaking was spending as much locally as it subscribed to the Association.

The PRESIDENT, acknowledging the vote, said he had no trouble with his oxide, and a box ran over twelve months.

MEETING COMPETITION IN RURAL AREAS.

Mr. C. R. FOWLER, of Leiston, then read a paper on "Competition in Rural Areas; How Can It Best be Met?" This, with a report of the discussion, appears on later pages.

A vote of thanks was accorded the author, on the proposition of Mr. P. D. WALMSLEY (Great Yarmouth), seconded by Mr. A. J. UNDERWOOD (Braintree).

In the course of the discussion on the paper, some reference was made to Mr. Fowler's extracts from a recent speech of Mr. H. Morrison, the Minister of Transport.

Mr. WALMSLEY said he thought the National Gas Council should register an emphatic protest against the boosting of electricity by public men appointed by every section of the community, which took place in season and out of season. Ministers of State were, after all, public servants, and were not chosen to represent the interests of any particular class or industry in the country. He proposed as a resolution: "That this meeting protests against propaganda work by officials of the Government in regard to electricity, and urges that the National Gas Council, representing the industry as a whole, should take steps to register a protest."

Mr. AUCHTERLONIE seconded this.

Mr. J. H. TROUGHTON (Newmarket) said he thought such a resolution would be futile. The National Gas Council thoroughly understood the situation, and whenever it was judicious to make a protest they would do it.

Mr. WALMSLEY pointed out, however, that the intention was merely to strengthen the hands of the National Gas Council; and the resolution was carried.

It was decided that the next meeting should take place in London.

ANNUAL DINNER.

The annual dinner took place in the hotel in the evening, when a large party of members and guests sat down under the Chairmanship of the PRESIDENT, who submitted the Loyal Toast.

Lieut.-Col. H. M. A. WARD, D.S.O., M.A. (Deputy Town Clerk), proposed "Success to the Eastern Counties Gas Managers' Association," and said he always regarded himself as a personal friend of the President. As a motorist, he wished the industry would find something which would not only keep down the dust, but would also abstain from leaping up on to the car. In his response, Mr. J. GREEN (the Vice-President) declared that the Association were very proud of the President.

The toast of "The Harwich Gas and Coke Company, Ltd.," was in the hands of Mr. AUCHTERLONIE, who made warm acknowledgment of the great kindness of the Chairman and Directors. Mr. Gregory, too, had devoted much time and care to the arrangements for the meeting, which would be a memorable one in the annals of the Association. Price was the main factor in competition, and gas undertakings in this country were greatly hampered in methods of charge. More elastic tariffs were required. In the unavoidable absence of the Chairman of the Company, Mr. TOWNSEND replied to the toast, and expressed his great pleasure at being there to support his old friend Mr. Gregory as President. If Colonel Ward would visit any place where tar was properly applied, he went on to say, he would find none of it on his car. It was merely a matter of getting the right article and putting it on in the right way.

Mr. WALMSLEY proposed "The Visitors," and in the course of his remarks expressed the opinion that the Institution of Gas Engineers had been a little short-sighted in making entrance so difficult for many men possessing scientific attainments and experience in different branches of gas manufacture, distribution, &c., whose advice and knowledge would be of inestimable value in furthering the interests of the gas industry. Mr. F. HAROLD FRENCH (the Borough Engineer), in response, testified to the good relationship existing between the Gas Company and his department. Each advised the other of requirements as far ahead as possible, so that work might not have to be done twice over. Gas managers and chemists had done good work in providing a reasonable economical service in the way of road dressings. A length of road which he constructed twenty years ago was put down in flints, and it had had no repairs apart from an application every three years of refined tar. He used nothing but British tar.

The final toast was that of the President—proposed by Mr. TROUGHTON, and acknowledged by Mr. GREGORY.

"SHAMROCK V." AT HARWICH REGATTA.

On the Saturday, still favoured by glorious weather, many of the members and ladies witnessed the trial race in Harwich Regatta of Sir Thomas Lipton's new challenger to America for the Cup, "Shamrock V." Again they were indebted to the Chairman and Directors of the Gas Company, who took them in a steam launch, from which magnificent views of the racing were enjoyed. "Shamrock" won handsomely on her time allowance, and her chances are considered to be quite promising.

Presidential Address of the Right Hon. Viscount Cecil of Chelwood.

Society of British Gas Industries, Annual Meeting, May 16.

I think I have had the honour of telling some of my present hearers on a previous occasion that my chief connection with the gas industry is that for a good many years I acted as one of the Counsel for the South Metropolitan Gas Company, before Committees of Parliament.

In that way I became more or less closely acquainted with Sir George, or as he then was, Mr. George, Livesey. He was a very remarkable man, and in many ways deserved well of the gas industry. But the aspect of his work on which I want to speak to you this afternoon is the fact that he was one of the first, and certainly one of the most successful, leaders of industry to give effect to the principles of industrial co-partnership.

The history of his connection with that movement is worth recalling in a few words. Prior to 1883 there had been a series of disputes between the Company and its employees until the conditions had become by no means as satisfactory as could be desired. In that year, Livesey, who had been the Chief Engineer, and was then Chairman of the Company, persuaded the Directors to establish a system of profit-sharing which developed into a complete system of co-partnership. The introduction of the system was not, however, received with favour by a section of the employees. It led to a prolonged and embittered strike. But it was ultimately accepted. And, I believe, from that time to the present day—that is, for over forty years—there has been no strike, and no serious dispute between employers and employed. Indeed, it would not be too much to say that both sides have now become firmly convinced that their interests are identical, and that, however much a particular measure may appear to be beneficial to one or other of them, in the end it will be harmful to both unless it benefits the undertaking as a whole.

A striking instance of this feeling occurred during the early months of the war. As we all remember, at that time prices and wages were going up by leaps and bounds, and accordingly the Company felt it necessary to increase the wages of their employees to conform with the general economic movement round them. On one occasion when notice of such a rise had been given the workmen, through the Co-partnership Committee, represented to the Directors that the rise contemplated was more than they considered the economic position of the Company would justify, and in consequence the suggested increase was postponed for several weeks. Certainly the contrast between an incident of this kind and the condition of affairs before the first steps towards co-partnership in 1889 must be admitted to be very striking.

Though the subject is no doubt familiar to many of my hearers, it may perhaps be of interest to add a short statement of the principles of the system now operating in the South Metropolitan Gas Company, as I understand it.

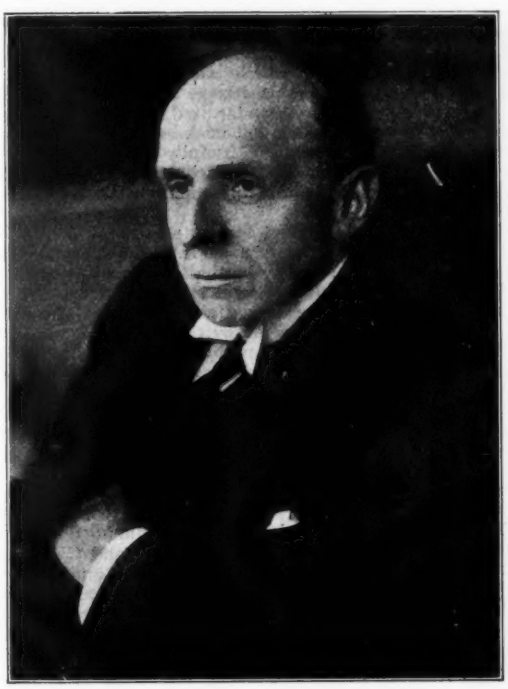
The central idea is that the consumers, the shareholders, and employees (managers, clerks, and workmen alike) shall carry on the undertaking in partnership one with another.

For some years prior to 1889 the Company had been working under what was known as the "sliding-scale" system, by which shareholders received an addition to their dividend if the price of gas to consumers was below a figure fixed by Parliament, or a diminution in dividend if the price of gas was increased. The profit-sharing plan proposed to bring the employees of the Company into this arrangement, and it was decided that they should receive a percentage bonus upon their year's wages when the price of gas was below the standard figure. Each employee was required to sign an agreement to work for the Company for twelve months at the current rate of wages, the Company agreeing to employ him during that period and undertaking that no alteration should be made in wages to his disadvantage. A slight modification was made to the system by the South Metropolitan Gas Act of 1896.

The scheme worked to the complete satisfaction of all partners up to the war period when the price of gas had to be increased (through circumstances over which the Company had no control) to a figure which completely prohibited the payment of bonus to the employees, and almost extinguished the dividend of the shareholders. A way had to be found, therefore, to reconcile the interests of the three partners under the new conditions which followed the Great War, and this was effected in 1920 by the passing by Parliament of an Act promoted by the Company. By this Act statutory provision for the co-partnership was, for the first time, obtained by the Company by a provision that surplus profits, after payment of 5 p.ct. dividend on the ordinary stock, should be divided in the proportion of three-fourths to the consumers, by way of reduction of the price of gas, and one-fourth equally between Capital and Labour—*i.e.*, between the ordinary stockholders, by way of increased dividends, and the employee co-partners of the Company, by way of a uniform percentage of bonus on their salaries and wages.

In the South Metropolitan system, one-half of the bonus is required to be invested in the Company's ordinary stock in the names of the Trustees until the amount credited to any co-partner is sufficient to give him a stock certificate in his own name. The remaining half of the bonus is left in the Company's hands to accumulate at interest, or it may be invested in stock with the Trustees. All employees therefore become part-owners of the capital of the Company as well as participators in its profits.

Further, the co-partnership also provides, by the South Metropolitan Gas Act of 1896, for the election of three representatives on the Board of Directors by the shareholding employees of the Company. One of these Employees' Directors is a salaried officer, and the other two employees are in receipt of weekly wages—that is to say that, out of a Board of eleven, two are elected by the manual workers, and one by the clerical staff.



THE RT. HON. VISCOUNT CECIL OF CHELWOOD,
President of the "S.B.G.I."

Besides this there is a regular machinery for bringing all questions affecting the employment of the men before a Committee called the Co-partnership Committee, which in almost every case settles any question that may arise.

In addition there are a number of welfare arrangements for the employees which have gradually grown up under the functioning of the co-partnership system.

I have purposely avoided going into any details of all these arrangements because the details necessarily depend upon the particular circumstances of the Company, whereas the general principles are of interest not only to that Company, not only, indeed, to gas companies, though I believe it is now true to say that a large number of them have adopted some such system, but to the whole industrial community. Fundamentally, the basis on which the conception of co-partnership rests is simple and obvious—namely, that in the end the interest of all those concerned in any industrial undertaking, whether as consumers, shareholders, or employees, is the same, and that in consequence an industrial organization which recognizes and, indeed, is built on that principle is not only judicious and

humane, but is the logical outcome of a proper understanding of the actual facts of industry.

Probably this thesis would nowadays be generally accepted, but it is very far from being acted upon in practice. Take, for instance, the relation between producer and consumer. Their interests are still popularly supposed to be antagonistic. The aim of the producer is to get the largest price he can for the commodity produced, while the object of the consumer is just the opposite—namely, to get the article as cheaply as he can. This has always been so, and going right back through the ages you will find maxims and practices depending on this conception. *Caveat emptor*, for instance, and the like. Obviously in any single transaction this is true. But it is equally obvious that if you look at the thing more broadly it is not only not true, but the opposite of the truth. Fundamentally the interests of consumer and producer are the same. The consumer's object is no doubt to get cheap and abundant articles. But he can only get these if the producer can make such a reasonable profit as will enable him to supply them. Conversely, the object of the producer is to sell at a profit as many articles as he can, but he can only do that in practice, and apart from special circumstances, if he keeps his profit reasonably small. Yet the whole machinery of bargain and sale is based on the theory that the interests of the two parties, the buyers and the sellers, are different.

I have sometimes wondered whether the plan prevailing in the gas industry could not with advantage be extended to others. The principle at any rate seems right. Profits should only be allowed to rise on condition that prices fall. So long as that is done it remains clear that there is no economic hostility between buyer and seller. Probably the complexities of most industries are much too great to enable a standard price to be fixed, subject to variation in the way described. Clearly that cannot be done when the article sold varies in quality, and, indeed, in nature, as it does in a large number of commodities. But where the articles are standardized and sold under conditions similar to those that prevail in the sale of gas, it is possible that the gas system might be usefully extended.

However that may be, the assumed hostility between buyer and seller operates as I think unfortunately in many cases at the present day.

Take the fiscal controversy, for instance.

I am not a Tariff Reformer, or a Protectionist, or an Empire Free-Trader, or whatever may be the fashionable term for one who believes in the value of protective import duties. But nevertheless I do recognize that a fair and impartial consideration of the question is hampered by the underlying theory that what benefits the producer will probably injure the consumer.

The case, as I think, against Tariff Reform can be made quite strong enough without appealing to this ancient and pernicious prejudice.

If the reasons for recognizing the unity of interest of buyer and seller are strong, those for recognizing the essential economic identity of employer and employed are far stronger. It is a subject for much thankfulness that this identity of interest is now very largely accepted. Indeed, it is a theme constantly developed on myriads of platforms throughout this country. Everywhere we are being told that Labour and Capital must work together, that they are in the same boat, and all the rest of it. It is a very good thing that this language should be held, but one cannot help remarking that the actual organization of industry generally proceeds on a very different basis. Broadly speaking, and apart from a few exceptions, do we not see the employers and employed, or to use the older phraseology, the masters and workmen, drawn up in serried ranks opposite one another? You have Employers' Federations on the one side, workmen's Trade Unions on the other. And one of the chief purposes of the existence of each body is that it may make head against the other. No doubt most reasonable leaders on each side do their utmost to avoid the actual outbreak of hostilities, in the form of strikes and lock-outs. But nevertheless their negotiations are conducted on the theory that there is only a certain amount of profits available, and that it is the function of each organization to obtain for its constituents the largest share of them possible. True, the negotiations are usually conducted in a courteous and friendly way, but it is always understood that at the back there is the possibility of resorting to more hostile measures. In fact, there is a close parallelism between the relations of employers and employed and the international relations of different States. In each case the discussion of any dispute between two or more parties is friendly enough, but there is always the menacing shadow of war in the background, unless, indeed, we have succeeded in exorcizing it in the international sphere by the Kellogg Pact and the Covenant of the League of Nations.

Industrially and internationally the consequences of this condition are the same. In each case we see an atmosphere more or less pronounced of suspicion, often degenerating into hostility and slander. Industrial unrest, as it is called, is an ugly thing. I am only a looker-on, but I read with the gravest misgivings stories and allegations on each side. Sometimes I am assured that the employers purposely conceal the amount of profits that they are making. Not long ago we were told that in a great industry the owners took the opportunity of a boom to increase enormously the nominal capital engaged, so that the dividends being paid should seem to be comparatively moderate. In other cases it is said that profits are paid away to a secret reserve with the same object in view. I remember when I was at the Bar being engaged in a case where a large Dock Company were being bought up by a public authority. The Company were able to show that, though they had paid a dividend at the rate of 12 p.ct. for some years, they had in fact earned and concealed a profit equal to twice the value of that payment. And I remember a friend of mine telling me that in a case within his knowledge the workmen had made some demand for increased wages. The agents of the employers had met them, and had explained with a wealth of figures that the demand of the workmen could not possibly be met on an economic basis. So admirably was the case put that the workmen were convinced, and withdrew their demand. And then two or three months later the Directors declared a dividend of 30 p.ct.

Nor are the stories all on one side. We are continually hearing of ca'canny and the like; that workmen will not do their best, or at any rate work their hardest; that they resent labour-saving devices; that they are ready at the smallest excuse to absent themselves from their work; and as we unhappily know to be true, that they have even been induced sometimes to indulge in machine-breaking, either directly or indirectly.

Now I have no doubt that a great many of these stories on both sides are quite untrue. Indeed, my impression, necessarily derived from such external investigation as I have been able to make, is that generally speaking you may safely discount at least 75 p.ct. of anything that you hear of this nature. But the trouble is that even though they are not true, they are very largely believed on both sides. And the result is too often reflected in the relations of the two classes and produces a kind of secondary disturbance in the smooth-working of industry. Even when there is nothing like malpractice or unfairness, you will find resentful employers on one side and reluctant workmen on the other. No one who has any knowledge of human nature can doubt that whenever anything of this kind takes place the consequence must be greatly to diminish the value of the joint effort. And yet, though this is the case and is generally recognized to be the case, the recognition too often produces no consequences of industrial value.

I remember some years ago being on a political errand in one of the manufacturing towns in the West Riding of Yorkshire. Owing to the necessities of trains, I arrived at my destination several hours before the meeting which I was to attend, and I passed a considerable part of the intervening time in conversation with the chairman of one of the Political Parties, who was also a large employer. In the course of our talk I tried to convince him of the value of the principles of co-partnership. But he was entirely obdurate, and at last I said to him, "Well, Mr. Blank, you do at any rate recognize that a cheerful workman is economically superior to one who is sullen or reluctant." "Certainly," he replied, with great vivacity, "and I often say to my workmen that if they cannot come to their work with a smile on their faces it is better that they should stay away altogether." A classical instance of how not to do it!

I hope I am not fanciful in thinking that this division between the industrial classes is responsible for a political phenomenon which I am old-fashioned enough to regard as somewhat disquieting. When I was young, national economy was part of the creed of every political Party. We all accepted the Gladstonian doctrine that it was better to leave the money to fructify in the taxpayers' pockets. We held in those days that the question of how you raised money by taxation was much less important than the amount of the taxes raised. We thought that the idea that you could tax the rich without taxing the poor was chimerical; that the money you took away from the rich would not, but for your action, be hoarded, but would be spent, and would give more or less desirable employment to other classes in the community. Conversely we held that if you tried to raise money by indirect taxation, the poorer classes would not only be injured directly, but their purchasing power would be diminished and consequently the great manufacturing interests would be injured as well. In other words, we considered that there was only one fund out of which taxes could come, which was the surplus profits of the national industries, and that however you took it you were going to hamper and impoverish industry.

In saying all this please do not understand me to be arguing in favour of so-called capitalism, or against socialism, still less against social reform. That is a different issue altogether. If the productive machinery is transferred from private to public hands, that may or may not be a good thing, but it is evident that wholly different considerations about taxation arise. Similarly, it may well be that expenditure on education or housing is well worth while. But I am satisfied that, while what is called capitalism exists—that is, as long as industry is in the hands of private traders—it is true, as used to be generally agreed, that the amount of taxation levied has a direct connection with its prosperity. Apparently that view is not held, or at any rate is not acted upon, by any of the three Parties in the State at the present time. A large section of the Labour Party, if I understand them rightly, formally reject it. The

Conservative Party certainly showed no great sign of acting upon it during their recent tenure of power; and, unless I misunderstand them, at the present moment they believe that by a system of indirect taxation they can increase the prosperity of the country. Even the Liberals, the inheritors of the Gladstonian tradition, seem to argue that you can raise a large loan for some public purpose without increasing the burdens of the taxpayer.

No doubt there are many individuals in all three Parties who would reject these views, and would accept the older and, as it seems to me, sounder proposition. But none of us can fail to notice that national economy is no longer a popular cry. Its advocacy would be more likely to mean a loss of votes than a gain at an Election. And the reason, I think, is quite simple—namely, that there is very deeply embedded in the national consciousness the idea that economically the classes are divided into water-tight compartments. The popular view seems to be that what is good for one class is bad for another; and that, conversely, you can take money out of the pockets of one class without injuring the other. May not this be partly due to the unsound conception on which our industrial organization in fact rests? Is it not natural that as long as our industry is organized on the theory that employers and employed are economically opposed to one another, and that each ought to strive to reduce the gains of the other by appropriating the greater share of the profits to itself—so long as that conception rules our industry is it not certain that you will appeal for national economy in vain?

For myself, I take precisely the opposite view. As I have said, I desire to express to-day no opinion as to the rival merits of any political or social theories, but I am sure that it is quite impossible to finance schemes of social reform, however desirable, except at the expense of the whole community; and that unless that is realized, we are living in a fool's paradise. That is why to my mind the principle of co-partnership, which enforces the identity of the economic interest of all classes directly and indirectly engaged in industry, is based upon the actual facts of the situation. Until those facts are recognized, either by the adoption of co-partnership or in some other way, the industrial situation must continue to be unsatisfactory.

It is, however, said that the system of co-partnership is open to very grave objections. I do not propose to weary you by setting them all forth, but I should like to notice briefly one on each side.

On the employers' side I have found that the most serious criticism is that under the co-partnership system the powers of the employer are gravely diminished. This is a formidable objection because there is nothing that men are so little willing to part with as power. And it must be admitted that there is a strong *prima facie* case for this objection. Under the old conception, the works, including all the plant and buildings, belonged to the employer. They were his to do what he liked with, and he then went into the labour-market and hired at the market rate a certain number of workmen to come in and operate the plant. The direction remained entirely with him or with his nominees. He could choose what the plant was to do, how long it was to work, what was to be the nature of its operations. And when the product was finished it was the employer's business to sell it. The only interest the workmen had in the whole operation was to receive their wages. If they did not like their employment they could leave it, and the employer could obtain others to take their place.

That theory came down from very ancient times, perhaps from those days when the employer himself did a large part of the work with the assistance of his apprentices. But a rival theory has been growing up, which rests on the principle that the labour of the workman is just as essential a part of the undertaking as the plant, if not more so. Indeed, in some societies the position is actually reversed, and it is the workmen who, as it were, hire the plant and retain direction of its operations in their own hands. We have not got so far as that in this country. But even here the idea that the workman is a mere hireling without any rights beyond what he receives in wages is no longer generally accepted. It is now more or less admitted that he has at any rate the right to a living or standard wage. So too, if the employer decides not to work the plant for full time, he may have trouble with the representatives of his workmen. Again, conditions of work are generally regulated by public authorities, and by Trade Union rules. Indeed, the whole idea of collective bargaining cuts at the root of the ancient theories of employment. The result of all this is that the employer is no longer an autocrat in his mill or factory. His power is controlled and limited in a number of ways. But unhappily the psychological results of the old system remain, and the antagonism between the two classes is one of the consequences.

If the new state of things were frankly recognized, and a new industrial organization were built up, based on the principles of partnership, there might, no doubt, be a formal diminution of the employers' power. You cannot order your partner about in the same way that you can order your servants. But if I am right in believing that the old autocratic system of employment has already been abolished, nothing is lost by recognizing that fact. It is now very many years since we in this country have based our political institutions upon the principle that Government must be by consent of the governed. We have secured, or attempted to secure, that result by what we call democratic institutions, and with all its faults there seems no reason to think that any better system of constitutional government has yet been devised in the world. The question we now have to face is whether the system which on the whole has worked well politically is not becoming essential to our industrial prosperity. I do not believe that we have weakened our system of government by the changes that we have made in it in the last two or three centuries. On the contrary, I believe the law is more readily obeyed now than it has ever been in our history. To take one familiar instance—the regulation of traffic by the police is the admiration of every foreigner who visits this city. But what they specially admire is not so much the technical skill of the operation but the extreme smoothness with which it works and the willingness with which the directions of the police are accepted and obeyed. That is not because the police are more autocratic in this country than elsewhere. On the contrary, the reverse is true. It is one of the principles of our law that, with a few minor exceptions, the powers of the police are no greater than those of any individual.

The reason for the good relations of police and people is quite different. One of the fundamental maxims of our Constitution is that it is the duty of all to co-operate in enforcing the law, and because that duty is generally recognized and accepted the enforcement of the law becomes a relatively easy task. So that, if this reasoning is right, you would expect that if partnership principles were adopted in industry the result would be not that management would become more difficult, but that, on the contrary, orders would be acted upon with greater alacrity, just because they were not so much orders of a superior to his inferior, as the necessary arrangements which the partners in industry had themselves established for the better conduct of their common concern.

On the other side, the commonest and most serious objection raised by the employees to co-partnership (though in parenthesis I may say that I have found that this objection is not often spontaneously put forward) is that it will tend to break up the solidarity of labour. It is said that one of the great industrial achievements on the labour side of the last few decades has been the welding of labour in each industry into one body, ready to work not only for the individual benefit of each person, but for the prosperity of the working-class as a whole. If, then, you have a system of co-partnership it is said that it will result in breaking up labour into small units, concerned only with each particular undertaking, and that the common mind will be weakened or destroyed. To me this objection seems open to replies not altogether dissimilar from those that I have tried to put forward as to the effect of co-partnership on the employers' position. The truth is that each of them is fundamentally based on the theory which it is my chief object to combat this afternoon, that the interests of employer and workmen are intrinsically divergent.

Everyone admits that the corporate feeling and action of the workmen is in many ways an admirable characteristic. It has all the attraction which other manifestations of *esprit de corps* have for us. But there is no reason in the world why that should be undermined or diminished by any reorganization of industry on the lines suggested. It is quite true that if employers and workmen are to be treated, and treat themselves, as partners, it will be no longer necessary that their ranks should be embattled in order to fight one another. In that sense organizations both on one side and the other will to some extent change their character. But however far we may hope to advance in this direction, there will always be a different point of view for those who are planning and those who are actually carrying out the operations of any undertaking. Trade Unions might no longer be instruments of class warfare, if and so far as they can be so described at the present moment. They will exist under the new system not for fighting the employers, but for promoting the prosperity of the industry. It will be their task to keep alive the point of view of the workmen, to see that their interests are not overlooked, and to bring to the common cause the experience which only those actually engaged in the work can fully have. I believe that in co-partnership firms it is common to encourage the workmen to make suggestions for the better carrying on of the business. And that which is done for the workman individually might well be extended to their organized bodies.

Does all this seem to you who are so much more familiar than I can claim to be with the actual conditions of industry, visionary and unreal? I hope not. For I am certain that it is only in some such direction as this that a genuine solution of our industrial difficulties can be hoped for. Perhaps it may turn out in industry, as in other things, that the visionary of to-day is the practical reformer of to-morrow.

I have tried to deal with the matter necessarily as an onlooker, and, if I may so call myself, something of a student of industrial problems. But there is a wider aspect to all this question. Complaints are often made against Governments and officials for interfering in industry. I understand the impatience with which their efforts are received, but those who criticize have to remember that industry is now so large a

part of our national life that no Government can afford to ignore its difficulties or its organization. After all, the business of the Government is to govern—that is, to direct the fortunes and prosperity of the country. And a very large part of our fortune and our prosperity depends upon the good conduct of industry. It is therefore not out of place if I venture to say a few words in conclusion upon the political aspects of these proposals.

I have suggested that they might be regarded as designed to democratize industry, to apply the principle of government of the people by the people for the people, to industrial relations. From this point of view surely the plan must be regarded, at any rate by those of Liberal opinions, with sympathy and support. Privilege in industry should be from their point of view no less objectionable than privilege in public life. To the Labour Party I would recommend these suggestions not only as being democratic, but even as a necessary prelude to any more advanced system of social institutions. Is it not true that the great political objection to collectivist systems has been that they were so difficult to carry out? In principle they mean the substitution of the people for the individual in the direction of industry as well as in other national affairs. Some of us may have doubts whether it will ever be possible for such a system to work successfully. It is very certain that if it were put in force by a sudden change tomorrow, it would break down hopelessly for want of industrial experience. Nothing could be more necessary, I should have thought, even in the view of those who hope to see the largest and most far-reaching of social changes, than that measures should be taken as soon as possible to train those who are ultimately to receive the immense responsibility of the direction of our industrial activities. As for my old friends the Conservatives, there are some, no doubt, who will be content to say, this is a change, and therefore we are opposed to it. There is no arguing against that syllogism. But a good many Conservatives now are not satisfied with it. They are prepared for changes if they make for eventual stability. They have, for instance, for many years advocated a diffusion of ownership of land, on the ground that it increases the sense of political responsibility. If peasant proprietorship is right for agriculture, why is it not right for all other forms of industry? From one angle co-partnership may be looked upon as a species of industrial peasant proprietorship. The co-partner becomes not only the sharer in the profits, but a sharer in the ownership and the management of the industry as well.

Finally, to all three Parties, except the reactionaries on one side and the revolutionaries on the other, I would say that the greatest political object must be the unification of the nation. Anything that brings the classes together, that dissipates suspicion, that increases good-will, must be of the highest advantage to the State. That co-partnership, if adopted, would bring about the Millennium I do not pretend. But I am deeply convinced that its principles, if adopted, would minimize some of the more glaring evils from which we are at present suffering.

Design, Construction, and Operation of a Modern Coke Oven and Bye-Product Recovery Plant, Equipped for the Manufacture of Town Gas.

By D. V. Hollingworth, F.I.C., M.I.Chem.E., Manager of the Lancashire Foundry Coke Company, Ltd., Coke, Gas, and Bye-Product Works, Altham.

[From a Paper before the Manchester Geological and Mining Society, May 13.]

It will be within the knowledge of all that the period of serious depression in industry experienced about the end of the year 1920 found the iron and steel trade, and its close relation, the coking industry, in such a condition as to be quite unable to withstand the intensive competition from abroad which then began.

Coke oven plants had been greatly overworked during the war and during the boom in trade following it, and few repairs had been possible. In succeeding years labour troubles and general industrial uncertainty had retarded much needed re-organization. Many plants were working much below capacity, costs were high, and altogether the coking industry was in a deplorable condition.

About this time the coking plants of the country were not always situated economically adjacent to either blast furnaces or collieries. They were frequently uneconomically small in size, perhaps comprising on the average about 50 ovens, with a throughput of some 2000 tons of coal per week. Many of the ovens were of the waste-heat type, and those which were of the regenerative type were yielding only about 35 to 40 p.ct. of spare gas. It was unusual for either spare heat from the waste-heat ovens or spare gas from the regenerative ovens to be economically utilized, and rarely was spare gas being sold for town purposes.

Very often the slack for charging the ovens was introduced from the top by small hand-pushed hoppers, although, of course, it was frequently charged in the form of a stamped cake by means of a peel. The coke again was generally discharged on to a flat or sloping bench and loaded into trucks by hand. It can be easily seen, therefore, that the nature of the labour was distinctly arduous and unpleasant, and that operating costs were very high.

At this time, too, the firebrick material available was not sufficiently refractory to enable really high temperatures to be employed, and the recovery of heat from the chimney gases left much to be desired.

Since there were at work coke ovens in all stages of antiquity from 40 years of age downwards, it will be understood that there were various grades of efficiency.

Plant at Birchenwood.

To give a fair idea of the sort of plant in operation at the end of the war, I will briefly describe the ovens at Birchenwood Collieries, which were erected in the year 1912, and which at that time represented the very latest German practice. These particular ovens were, of course, greatly superior to the majority then working, and they are described in order that they may be compared with the Altham ovens, recently erected, and thus show the great advances made in oven construction from 1912 to 1930. Since both plants are by the same designer, the comparison is the more interesting.

The Birchenwood ovens were 33 ft. long, 6 ft. 6 in. high, and had a mean width of 20 in. They were erected in two batteries of 36 ovens each, and were constructed of English firebrick containing 84 p.ct. of silica. The charge of wet coal was about 9 tons, and since the slack usually contained some 11 or 12 p.ct. of water, the weight of dry coal was about 8 tons per oven. The normal carbonizing time was 30 hours, and to enable this comparatively short period to be maintained, it was usual to have a temperature of 1060° C. in the heating flues. The regeneration of heat was fairly good, as the waste gases passed to the chimney at a temperature of 350° C. In consequence of this, the amount of spare gas available after the ovens had been heated reached the very high figure (for the period) of 40 p.ct.

About the year 1927, the keen competition for the world's business in iron and steel made it imperative that the costs of production of coke should be reduced, and it was realized that to achieve this economy most drastic alterations in the design and construction of coke ovens were necessary. The lines of improvement demanded were quite clearly indicated, and were as follows—viz.,

1. An increase in the throughput of coal per oven per day.
2. The consumption of less heat during the coking process.
3. The greater use of labour-saving devices.
4. The fullest possible production *and* utilization of all the bye-products of carbonization including the gas evolved.

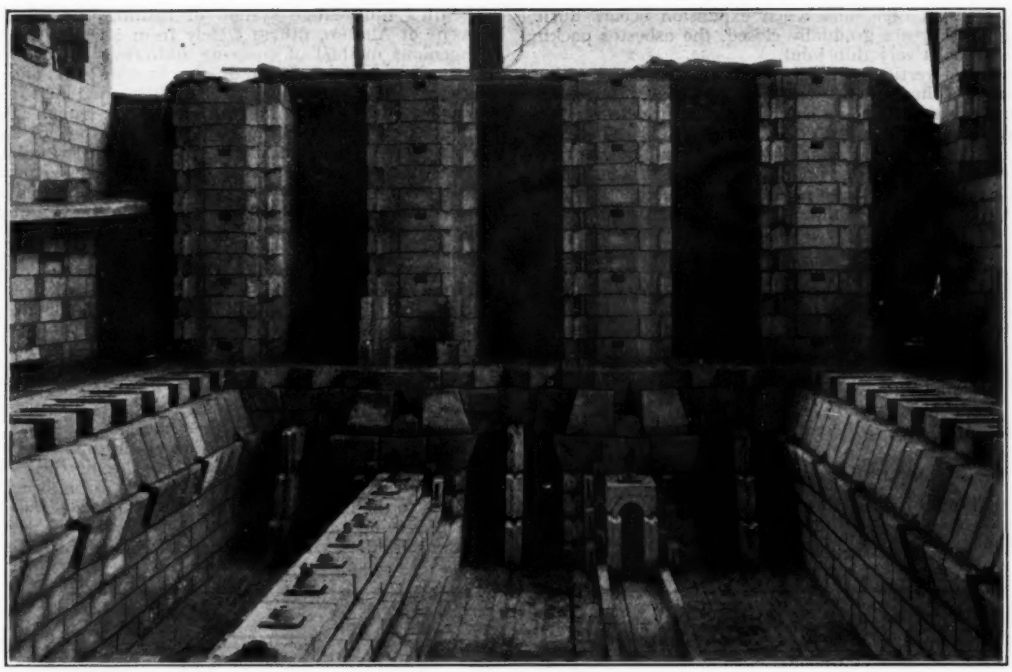
The attainment of these desirable results involved:

1. Quicker transference of heat from the heating gases to the coal in the oven.
2. The use of much higher temperatures than had been customary.
3. A considerable increase in the size of the oven.
4. More complete regeneration of the heat of the waste gases.

And these in turn necessitated—

1. The employment of a more refractory building material—*i.e.*, silica, and
2. A narrow oven.

The reduction in width, however, meant less capacity, and so, to compensate for this and generally to increase the capacity, the ovens had to be made much longer and higher. In this manner was evolved the modern coke oven which, like



SILICA BRICKWORK OF STILL OVEN SHOWING CONSTRUCTION OF BURNERS AND HEATING FLUES AT ALTHAM: LANCASHIRE FOUNDRY COKE COMPANY, LTD.

many other inventions and improvements, had its origin in sheer necessity.

Whereas the old type of ovens could be described as short, low, and wide, the modern kind may be described as long, tall, and narrow.

I hope it has been made clear that the solution of these problems, and the achievement of the desirable improvements outlined, rendered necessary considerable changes in the materials and methods of construction of the ovens, and it may be of some interest if I now describe in a more detailed fashion how these various improvements which have been embodied in the most recent Still plants, have been carried out, by the contractors, Messrs. Coke & Gas Ovens, Ltd., of Westminster.

The oven slab or raft upon which the structure is built consists of a reinforced concrete pad 2 ft. thick. The need for such a stout foundation will be appreciated when it is stated that the weight per square foot resting upon it is about $3\frac{1}{2}$ to 4 tons compared with 2 to $2\frac{1}{2}$ tons in older batteries. The material employed in construction of all parts of the battery subjected to the higher temperatures was a very high-grade silica containing 96 to 98 p.ct. of SiO_2. Throughout the erection, samples of the bricks were regularly tested under a pressure of 50 lbs. per sq. in. for heat resisting quality. It was generally found that they withstood a temperature of 1690° C. and upwards without softening. Wherever firebricks were used, such as the regenerators for filling, a high quality was chosen, not softening below 1600° C.

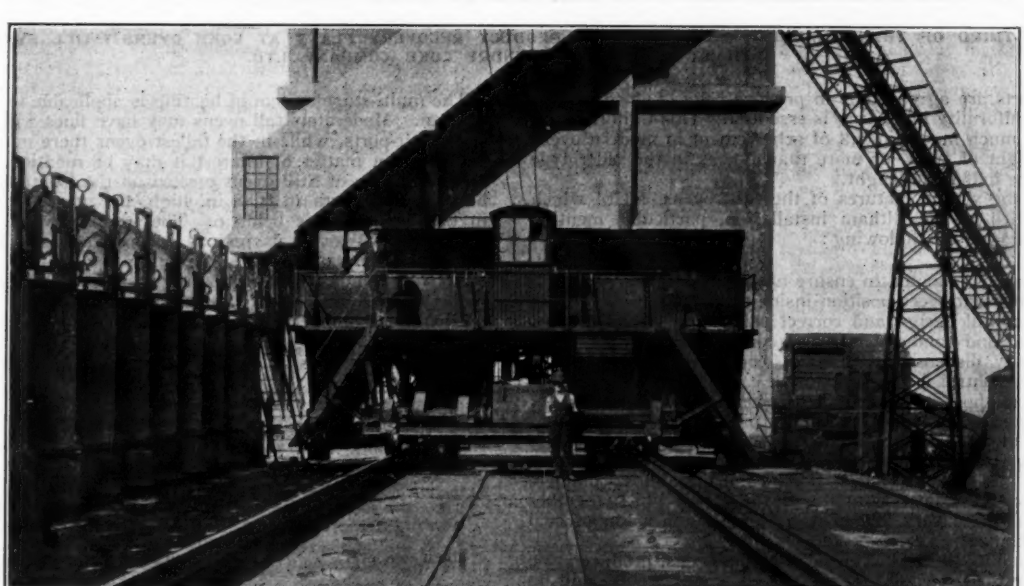
As it is of some importance to keep silica work as dry as possible, all the bricks and shapes were transported in closed vans, and throughout the erection the structure was covered by a temporary roof. Both during erection and preliminary heating up extraordinary precautions were taken to allow for and control the expansion of the silica work.

This is especially necessary, as the ovens were to be used for the manufacture of town gas, the composition and calorific value of which had to be rigidly controlled.

It is generally agreed, I think, that a mass of silica brickwork such as a battery of coke ovens will expand, when heated, by about 1 p.ct.—$\frac{1}{8}$th of an inch per lineal foot is, I believe, the accepted figure. This means that a battery of ovens which measure 36 ft. long when cold will expand some $4\frac{1}{2}$ in. when fully heated. This does not by any means, however, represent the amount of expansion that has to be allowed for to prevent distortion and leakage.

Silica Work During Construction.

At a great many points throughout the battery spaces are provided between the courses of brickwork. These spaces are



COAL CHARGING LORRY ON OVEN TOPS—STILL COKE OVENS AT ALTHAM: LANCASHIRE FOUNDRY COKE COMPANY, LTD.

filled with asbestos rope, and when expansion occurs during the heating up they are gradually closed, the asbestos packing being squeezed to a very thin joint.

The amount of vertical and lateral expansion of the Altham ovens during the heating up was carefully observed, and the greatest expansion occurred when the temperatures in the heating flues were round about 185° C. and 400° C. The ovens, of course, were fired in the chamber itself, and the temperatures in the chambers of these points would probably be 230° C. and 500° C. respectively. The possibility of leakage was minimized by the use of deep bonding rolls on the bricks and by use of a high grade silica cement. Also at positions below the regenerators and below sole level, and again at the top of the ovens, substantial tie-rods were used to bind the structure together. As the temperatures became higher during the heating up, and the need for controlling expansion ceased—*e.g.*, when the brickwork became red hot—the tie-rods also became red hot, and therefore became useless. They had served their purpose.

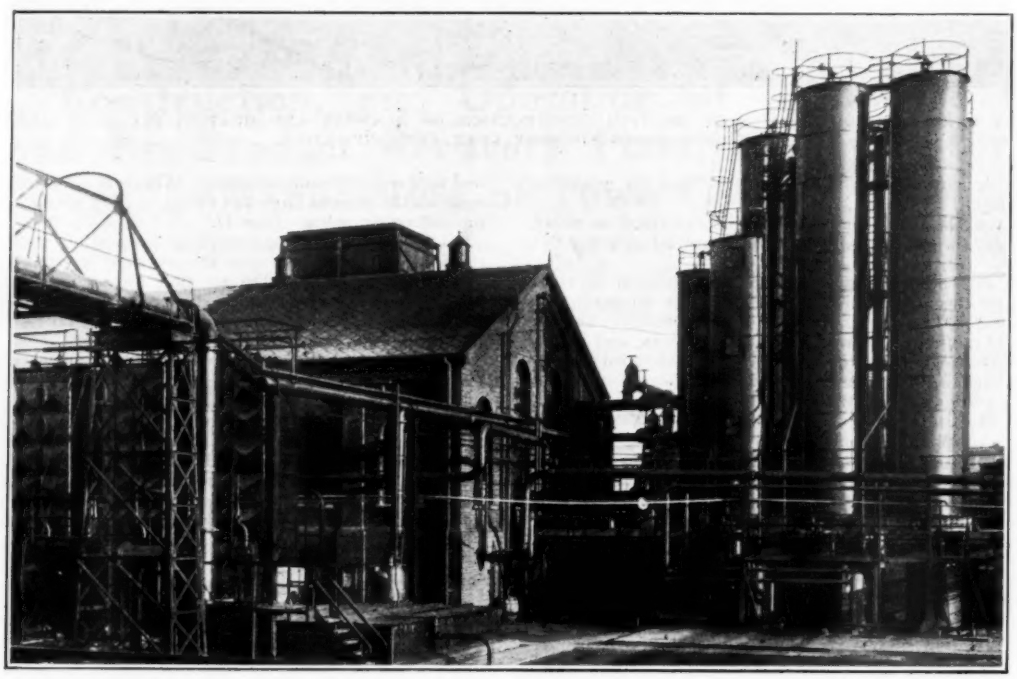
The heating up of the ovens to full carbonizing temperature of 1000° C. occupied about 10 weeks. During this period 900 tons of coal were used, and a small army of men employed.

System of Heating at Altham.

Having regard to its great importance it may be of interest to deal somewhat fully with the system of heating as adopted in the Still ovens at Altham.

Still's multi-stage system of heating, as employed in the ovens at Altham, differs widely from all others. It is a most ingenious method of ensuring uniformity in heating. It consists in the combustion of the heating gas and air in five stages over the full height of each heating flue instead of the usual method of burning the gas in one stage. This arrangement is carried out by a quite novel method of supplying the air. The air for combustion, instead of being admitted at the sole level in one undivided amount, as is customary, is here split up into five different portions and admitted in as many different positions, one above another in the height of the flues. The heating gas is supplied to the base of each flue through double gas nozzles, one superimposed on the other. These are very accurately bored out so as to deliver the exact quantity of gas required. The upper nozzle is slightly larger in diameter than the lower one, and is designed to protect the latter from falling debris which might tend to restrict the gas way. The design of the heating flues, the thickness of the oven walls, and the control of the gas pressures in the flues is expressly arranged to give the most rapid transference of heat to the oven chambers.

The division of the total air current is done in a very simple manner by means of vertical passages in the silica binders forming the heating flues. From the sides of these vertical passages there are five outlets or ports through which the air passes to the heating flues, thus providing air in five stages and so producing practically five different flames which, running into each other, cover the whole of the height of the oven wall.



ONE-THIRD OF THE EXHAUSTER HOUSE AND BYE-PRODUCT RECOVERY PLANT AT COKE OVENS (STILL SYSTEM) ALTHAM: LANCASHIRE FOUNDRY COKE COMPANY, LTD.

All experts are agreed that to produce coke of good quality absolute uniformity in heating is essential. This uniformity in heating is much more difficult of achievement in modern ovens with a height of 12 ft. or more than it was in the older type which were half their height.

Among the special features of the Still ovens, all of which are embodied in the Altham installation, particular mention may be made of the following:

1. The means adopted to ensure absolute uniformity of temperature at every position inside the oven.
2. The skilful design and correct calibration of all nozzles, flues, and conduits, whereby control during working is largely dispensed with—*e.g.*, control in design substitutes control during working.
3. The method of construction whereby decomposition of the heating gases is completely prevented, and decarbonizing of the gas channels is rendered entirely unnecessary.
4. The quick and efficient transference of heat from the burning gases to the charge of coal and the almost complete recovery of heat from the waste gases, which together result in a very low heat consumption per ton of coal carbonized.
5. The ability to employ for heating the ovens, producer gas, blast-furnace gas, or coke oven gas at will, and to change over from one to the other of these gases in a few minutes.

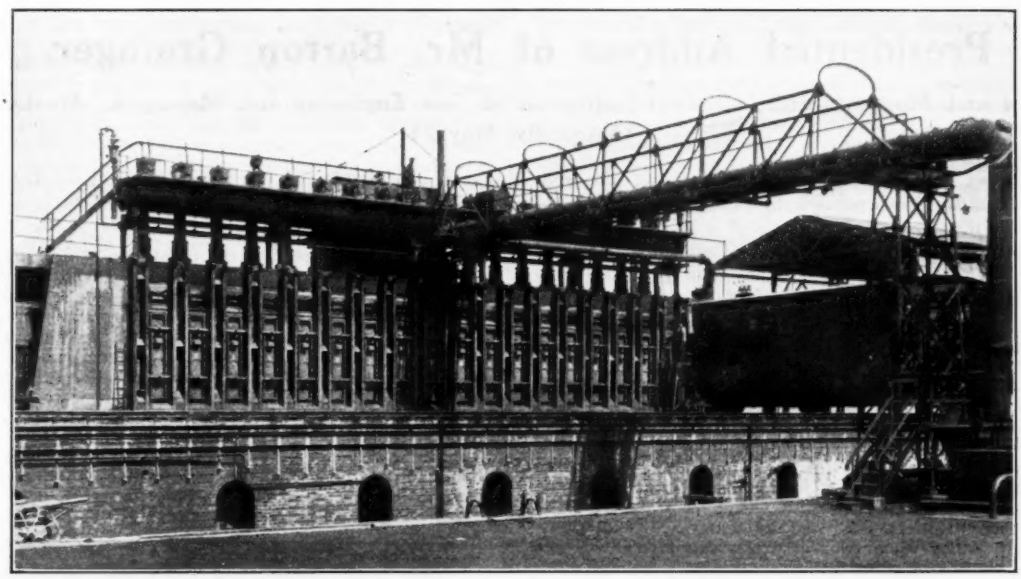
The multi-stage system of heating is applicable to any height of oven. Moderately tall ovens may have flues with only 3 or 4 such air-ports, while in the tallest ovens there may be 6 or 8 ports. As a matter of interest it may be mentioned that the largest battery of Still ovens erected on the Continent has carbonizing chambers 19 ft. 8 in. high, the number of air inlets in the heating flues being 6. The uniformity of heating in these very tall ovens is just as pronounced as it is in those which are only 9 or 10 ft. high.

That the temperatures prevailing in the ovens at Altham are really as uniform as is claimed, is proved by the following particulars of temperatures which obtain there.

Temperatures at Different Positions in a Still Oven, Illustrating the Uniformity of its Heating.

—	Ram Side, 6 Ft. from Door.	Centre of Oven.	Coke Side, 6 Ft. from Door.
	°C.	°C.	°C.
At the top of the oven	995	1010	1005
,, 8 ft. above sole level	1000	1010	1005
,, 5 ,, ,, ,, ,,	1010	1015	1010
,, 2 ,, ,, ,, ,,	1010	1015	1015
,, about sole level	1005	1015	1010

It will be seen that the maximum difference between the highest and lowest temperatures existing on the wall was



EIGHTEEN OF THE 84 STILL COKE OVENS AT ALTHAM: LANCASHIRE FOUNDRY COKE COMPANY, LTD.

20° C. These temperatures are slightly lower than those normally employed. They may be raised considerably during periods of maximum output, the temperatures may be somewhere about 1080° to 1100° C. in the oven chamber.

Although the Altham ovens have now been in operation over 12 months, under varying conditions of temperatures and output, there has not been any necessity for decarboning the gas nozzles and conduits.

The gas channels feeding the calibrated gas burners, where in other systems decomposition of hydrocarbons usually takes place, are, in the Still ovens, surrounded by a double row of perforated bricks, the orifices in which form a series of tubes communicating from one side of the battery to the other. The difference in pressure of the atmosphere in the coke and ram side galleries due to the pull of the chimney, slight as they are, are sufficient to cause a current of cooling air to pass along the tubes. This effectually prevents the brickwork from becoming overheated. There is no decomposition of the hydrocarbons of the gas end, and therefore no need for the operation of decarboning or for the provision of costly machinery with which to carry it out.

Regeneration of Heat.

The Waste-Heat Oven.—It will be understood that with simple waste-heat ovens the combustion of coal gas and air, neither of them preheated, will generate a flame of sufficiently high temperature suitably to heat the ovens; but practically the whole of the coal gas made on the plant will be required for the purpose. In the absence of regeneration the waste gases produced pass away from the ovens at a very high temperature, and consequently the heat energy contained in them must be employed for steam raising in boilers situated in close proximity to the ovens. As the surplus gas from this type of oven rarely exceeds 15 p.ct. of that made, and as it is not often either convenient or economical to use the waste heat on the site, very few waste-heat ovens are now installed.

The Regenerative Oven.—In a regenerative oven, on the other hand, the heat of the waste gases is regenerated in the air to be used for the combustion of the coal gas. The waste gases pass away to the chimney almost cold, and the heat they contain is conserved in the oven structure. The result of this is that a much smaller quantity of gas is required to heat the ovens. There is a much larger quantity of gas set free for town or other purposes, and it may be transported quite long distances. As previously stated, a modern regenerative oven requires only some 40 p.ct. of the coal gas it produces suitably to heat it, the remaining 60 p.ct. being available for any other purpose. In cases, however, where the whole of the coke oven gas can be disposed of for town supply, and is therefore not available for heating the ovens, the compound regenerative oven is employed.

The Compound Regenerative Oven.—In the Still type of compound oven either producer or blast-furnace gas may be used to replace coal gas for heating the ovens, and since these gases have a much lower heating power than coal gas it is necessary to preheat them as well as the air required for combustion. Considerable modification in the structure of the regenerators and sole flues is therefore necessitated.

By the combustion of coal producer gas and cold air the temperature developed in the heating flues would not be high enough to heat the ovens satisfactorily. This low flame temperature is due to the low calorific value (130 B.Th.U. per c.ft.) of producer gas and to the large quantity of inert gases it contains. If the air only were preheated the heating of the ovens would be possible; but it would be difficult and uneconomical, as the gas velocities required to produce the necessary high temperature would be so great as to prevent economical heat transference from the burning gases to the walls. Further, the preheating of the air only would not enable all the heat of the waste gases to be absorbed, as the capacity for heat of the required volume of air would be insufficient. Whenever, therefore, producer gas (or blast-furnace gas) is employed for heating, both gas and air must be preheated.

In Messrs. Coke and Gas Oven's Still compound regenerative oven now described, both gas and air are raised to a very high temperature before combustion, and as a result the flame temperature is sufficiently high for all purposes; the gas velocities are much reduced, and enable quite economical heat transference, and the heat of the waste gases is regenerated as completely as is desirable.

While discussing the subject of oven heating it may be opportune to refer to the arrangements designed to use either coal gas or producer gas for heating. The gas main carrying the supply to the burners is divided by valves situated at every 5 ovens. Coal gas may be supplied at one end of the main, and producer gas at the other, and so any 5 or multiple of 5 ovens may be supplied with either gas. When there is a greater demand for town gas in winter, this ability to liberate coal gas for the town is very valuable.

Effect on General Economy.

Having now dealt with the most important of recent developments in the Still oven, I would like very briefly to refer to their practical effect on the general economy of the process.

In 1912 the throughput per oven per annum was only 2336 tons of coal, whereas in 1930 the typical ovens instanced have a throughput of 5475 tons, and the very latest Still plant in Germany 13,250 tons. It may be remarked that several of the American installations have ovens giving a similar annual throughput.

Coke ovens of the Birchenwood type consumed, as stated, more than 60 p.ct. of the coal gas they produced, and therefore consumed about 1450 B.Th.U. per lb. of coal carbonized, whereas the plant described here, even with its very wide ovens, consumes only some 900 B.Th.U. per lb. With narrower ovens this consumption has been further reduced, and there is evidence that both in this country and in Germany heat consumptions of the order of 750 B.Th.U. are becoming common.

The saving in fuel gas so obtained directly results in more spare gas and so makes possible its sale in bulk for town purposes.

I may mention that the Lancashire Foundry Coke Company, Ltd., have been formed with the object of carbonizing the coal from the well-known Lower Mountain Mine, and converting it into high-grade foundry, furnace, and domestic coke. The plant they have put down will treat some 5000 tons of coal per week, and the whole of the bye-products are being recovered in the best known manner available.

The districts of Accrington, Great Harwood, Clayton, and Rishton have been supplied with gas from the plant ever since October, 1928, and the supply to Burnley began some weeks ago, on the completion of the extensions to the ovens. The quantity of gas at present being sold for town purposes is about 3 million c.ft. per day. But provision has been made for doubling this capacity immediately it is required.

Presidential Address of Mr. Barton Grainger.

Wales and Monmouthshire District Institution of Gas Engineers and Managers. Meeting at Caerphilly, May 21.

The Rhymney and Aber Gas Company, whom I am privileged to serve, was incorporated by Act of Parliament 30 years ago for the purpose of taking over a number of small gas and water undertakings which were in existence in various parts of the Rhymney and Aber Valley; erecting new gas-works and building new reservoirs; and linking-up the various supplies.

The Company came into being during the time of the South African War, and when the prospectus was issued the response was far from satisfactory. The consequence was that sufficient capital for carrying out the whole of the proposals was not subscribed. The Company, therefore, rather concentrated upon the water side of the undertaking, as this was a matter of vital importance to the community, and had to be content with patching-up and enlarging the existing gas-works instead of erecting a new one.

The Company subsequently sold its water undertaking to the Rhymney Valley Water Board, which was formed in 1921 for the purpose of acquiring the undertaking.

The increasing demand for gas and the inability to erect a new works to meet that demand caused the Company to turn their attention to the coke oven gas which was being produced at the Powell Duffryn works at Bargoed, and after careful investigation negotiations were opened and a contract entered into early in 1909 to take a supply of this gas. As time went on the Company extended the use of this gas and closed down works after works until in 1921 they ceased altogether to manufacture gas, and have not made any coal gas since that date. I think, therefore, the Company can claim to be pioneers, in spite of what my friend the President of the North of England Gas Managers' Association may think to the contrary.

It follows, therefore, that I personally do not come up against those trials and troubles associated with and incidental to gas manufacture, as some of you do, and in consequence it has been somewhat difficult for me to choose a suitable subject for this address. However, I think a description of my Company's particular, and in some respects unusual, methods of working may be of some interest to you.

My Company's district, which is a very scattered one, covers an area of approximately 60 square miles, extending from Caerphilly in the South to Rhymney Bridge in the North, and from Trethomas in the East to Bedlinog in the West, the greatest length being sixteen miles, while the maximum width is approximately six miles. This district is administered by six Urban Councils, and those of you who are responsible for company undertakings will realize that this circumstance does not in any way detract from our difficulties. The population of this area is approximately 120,000, and the principal and almost sole industry is coal-mining.

Over 100 miles of cast-iron and steel gas mains are required to supply some 11,300 consumers, the bulk of whom are slot consumers; and it is about this question of distribution that I would speak to you more particularly.

Our main distributing point, or "the heart of the system," as I am in the habit of describing it, is at Bargoed, in practically the centre of our district, on the west bank of the Rhymney River, and almost immediately opposite the bye-product plant of the Powell Duffryn Steam Coal Company, from which we obtain our supply.

The plant at our Bargoed Works consists of the following:

2 direct-coupled rotary type exhausters rated at 20,000 c.ft. per hour and 30,000 c.ft. per hour respectively. The smaller of the two, by Geo. Waller & Sons, is driven by 4½-H.P. Crossley gas engine, while the larger, by the Bryan Donkin Company, is driven by an 8-H.P. National gas engine.

2 rotary type compressors, by the Bryan Donkin Company, each direct coupled to a 10-H.P. National gas engine, and having a capacity per unit of 16,000 c.ft. per hour against a pressure of 3 lbs. per sq. in.

1 rotary type compressor, by Geo. Waller & Sons, gear-driven by a 20-H.P. Imperial gas engine, having a capacity per hour of 30,000 c.ft. against a pressure of 5 lbs. per sq. in.

1 reciprocating type compressor, by the Bryan Donkin Company, direct coupled to a 70 H.P. National gas engine, with an hourly capacity of 90,000 c.ft., against a pressure of 10 lbs. per sq. in.

Each of these gas engines, all of which are of the horizontal type, is fitted with a compressed air self-starter, the air compressor being driven by a 2-H.P. horizontal type National gas engine, while the water cooling for the reciprocating compressor is done by means of a gas engine driven circulating pump. In addition to the foregoing, we have a gasholder of over 200,000 c.ft. capacity and station meter.

Distribution.

Having briefly described the plant, I will now tell you how we proceed with the distribution. The gas, which is purified by the Colliery Company, and is taken at a point between their purifiers and gasholder, passes through three concrete catch boxes, each 25 ft. by 25 ft. by 5 ft. deep, these eliminating the last traces of sulphuretted hydrogen, and then through an 18-in. riveted steel main across the River Rhymney into our works, through the station meter, and into our gasholder. This 18-in. steel main is carried on concrete pillars on the bed of the river.

If the flow to our gasholder is insufficient to meet the needs of the moment the exhausters previously mentioned are brought into operation.

THE PRESIDENT,

Barton Grainger, Caerphilly.

Mr. Grainger was educated at the Osborne High School and Technical College, West Hartlepool, of which town he is a native. He entered the Gas Industry as a pupil in 1897, being articled to the late Thomas Bower, M.I.C.E., the then Engineer and General Manager of the Hartlepool Gas and Water Company. On the completion of his Articles, he became General Assistant until 1907, when he was appointed Chief Assistant Engineer and Manager, resigning this post in 1914 on his appointment to his present position of Engineer to the Rhymney and Aber Gas Company.

The next step is to pass this gas on to our consumers, the method adopted being as follows:

Gas is drawn from our gasholder and delivered at high pressure by means of the compressors, already described, through some 20 miles of steel and cast-iron mains, varying in diameter from 10 in. to 4 in., into district gasholders at Pontlottyn, Hengoed, Caerphilly, and Bedwas, as well as feeding *en route* a very large part of the area through some 47 pressure reducing governors, varying in size from 2 in. to 6 in., and designed to reduce pressures from 10 lbs. per sq. in. to 3 in. W.G.

Pressures at which we deliver into the high-pressure mains vary, of course, as the demand increases or decreases, and the governors are so placed that we could, in case of necessity, supply the whole of the district in one operation from our Bargoed pumping station without using the holders at all. These gasholders contain more or less emergency stocks, their combined capacity being 1,050,000 c.ft., or approximately 24 hours' supply.

On the face of it this distribution appears fairly simple and straightforward, but those of you who have experience of

mining areas will appreciate the fact that what I have told you is not all the tale. Here is some more of it.

With a distribution system such as ours, where a very large part of the area is supplied through governors direct from the high-pressure mains, it is imperative that arrangements be made to maintain the supply to the consumers in that area in the event of a temporary breakdown of the compressing plant, and in our case we provide for such a contingency in the following way.

Each gasholder is fed from the high-pressure system through a Bryan-Donkin spring-loaded stop valve, which prevents any "blowing" owing to over-filling; in addition, is a full-bore reflux valve by the same makers, working on a by-pass, which, of course, remains closed as long as pressure in the high-pressure main is maintained in excess of that thrown by the gasholder; but immediately the main pressure falls below that of the gasholder these reflux valves automatically open and feed back from the holder into the high-pressure main, thus ensuring a supply until such time as the difficulty has been overcome. It follows, therefore, that care has to be taken to keep as large a quantity of gas in stock as possible at all times.

EQUALIZING OF PRESSURE.

The equalizing of pressures throughout a district where altitudes vary from 208 ft. to 1257 ft. presents some difficulty, and in dealing with this matter I have found the district pressure reducing governors of the loaded diaphragm type particularly useful, although care and patience are required in setting them; and where governors are fixed in low-lying situations arrangements must be made to guard against overloading due to flood water entering the air vent on top of the governor case. Where necessary, we have overcome this difficulty by screwing a length of brass tube into the air orifice and leading such tube up the most convenient wall or lamp column.

Where a district is supplied from the high-pressure main through two or more feeders—and these, of course, inter-connected—we find it sufficient to fix single governors; but where only one feeder is in operation we find it advisable to have governors in duplicate to guard against any failure.

While on the subject of pressure, perhaps a brief description of a difficulty experienced in maintaining pressures in the Bedwas and Trethomas district during Sunday cooking hours, and the method adopted to improve matters, may be of some interest. This area is supplied by means of some 2500 yards of 6-in. steel main, the gas being taken through a 6-in. diaphragm governor direct from the high-pressure main feeding the Caerphilly gasholder, and while we were satisfied that the main was large enough and the initial pressure sufficient for the purpose, yet we could not maintain a satisfactory pressure during the hours mentioned.

In the first place, we attempted to find out where the pressure drop occurred, and as there were no consumers' services available for the purpose, we made use of the syphon standpipes, together with some additional standpipes tapped into the main at intervals between the existing syphons. At each of these points recording pressure gauges were fixed during Sunday cooking hours, and as this main is laid in a somewhat busy thoroughfare, as far as motor traffic is concerned, it was necessary to keep a man standing by at each gauge to prevent interference.

The result of this test was disappointing, inasmuch as it showed conclusively that the pressure drop did not occur at any particular point, but was taking place all along the pipeline. This was an unexpected complication, and as this main has very little "fall," and, in addition, is laid for a great part of its length over a 6-ft. bed of peat, at a level below that of an adjoining stream, we were afraid "settling" had occurred, resulting in the syphons, which were apparently correctly placed, not functioning properly.

EXAMINATION OF MAIN.

After careful consideration, we decided to examine this main over its full length, and the method adopted was as follows:

The main was divided up into 30 sections, varying, according to circumstances, from 50 yards to 150 yards in length. Each section was isolated in turn, the mains in the affected area being kept charged by means of a 1½-in. steam tube ryder fitted at each end with an armoured hose connection for ease in handling. A rod was now passed through the length of "dead" main, and on emerging at the opposite end, a suitable stopper was attached, and the rod withdrawn, any obstruction of a solid nature being carried along by the "stopper" and emptying into the trench. The next step was to test the section under treatment for "fall," and this was done simply by pouring water into the high end of the main and satisfying ourselves that we had collected an equal amount of water at the lower end.

Only at one point did we find a bad "sump" between two syphons, but as the preliminary "pull through" showed this section to be absolutely dry, we were satisfied that this particular length of main had not been causing any trouble. However, to guard against any such possibility in the future, we fixed an additional syphon at this point."

With the stopper we found sufficient obstructions of a more or less solid nature to account for the pressure drop at different points, such as a bucketful of soil, a quantity of stones, a number of badly yarned joints, and in two instances our "stopper" got fast at a bad "kink" in the main, due to careless "pulling round" bends on the road, this, of course, necessitating the "cutting out" of the stopper and replacing the faulty pipe, while there was evidence of internal corrosion. Wherever possible we saved a "cut" on the main by using the syphon pots with the cover plates removed.

The stopper used was made in our own workshop, entirely of steam fittings, with the exception of a rubber disc 6 in. diameter by ½ in. thick, this being secured between two 5½ in. diameter steam flanges, while a third flange of the same diameter was fixed at a distance of 12 in. on the same spindle, this arrangement preventing "canting" of the stopper.

The rod was built up of ¾-in. steam tubing, and as this was too "whippy" to push back the stopper when it began to bind, we made use of a wire rope fastened to and following the stopper. By this means we were able to reverse the movement of the stopper when necessary. In addition, this rope acted as a "pilot," and by carefully noting the amount of rope "paid out" when the stopper was moving forward, we were able to locate its exact position should the rod break off short, this mishap occurring on a number of occasions.

The cost of the foregoing operations, inclusive of labour and materials, worked out at 2s. 7d. per yard run, and the improvement resulting fully justified the expenditure.

REPAIRING LEAKAGES.

In common with others administering similar districts, we find the question of locating and repairing leakages a very difficult one to deal with, requiring constant attention, and any amount of pick and shovel work if the profits made in the retort house are not to be lost on the distribution system. It is an operation to which, in my experience, at any rate, there appears to be no finality.

We have in our area, as no doubt some of you know, the notorious moving mountain at Troedyrhiwfuwch, which from time to time causes us very great concern, as when this mountain does get lively there is always a possibility of our 5-in. high-pressure steel main being carried away, in which case the supply to Rhymney, Pontlottyn, and Abertysswg would be cut off altogether, excepting for what might be at the moment in stock at the Pontlottyn gasholder. A full gasholder would supply these places from 24 to 36 hours, depending, of course, upon the time of year when such a breakaway occurred.

However, certain precautions were taken when this main was laid to guard against such an occurrence. With the exception of the valve and syphon pot joints, which are of cast lead, the whole of the joints are welded, as many joints as possible being made outside the trench, where they could be turned over as the welding proceeded, while those joints which had of necessity to be made in the trench, where they are difficult and awkward to get at, were fitted with special slip collars, 20 in. long, the collar joints being of cast lead. The reason for our doing this is that, in my opinion, there is always a possibility of these joints not being too sound, owing to the welder not being able to turn his work over, and being obliged in a shallow trench to work in a cramped position.

We have also made provision for making a quick temporary repair on this main in case of need by keeping in hand at our Pontlottyn works 50 yards of 3-in. steel-flanged pipe, complete with bolts and jointing, and two special armoured hose connections for linking-up with the existing main.

To illustrate to what extent this 5-in. steel main has been affected by the constant movement which takes place along this mountain road, I might say that the main was laid, in the first place, along the left-hand side of the road looking North, but now the line resembles more or less that of a garden hose-pipe, and we can never be sure of finding it where it was originally laid.

Troedyrhiwfuwch is not the only part of the area, however, which gives us trouble. We have subsidence, due to colliery workings, to contend with throughout practically the whole of the district, and the enormous number of leakages we have to deal with proves a very serious item on the expenditure side of our accounts, not only as regards cost for material and labour, but also for road restorations which, as you all know, are very much more costly than formerly. From time to time one reads in the Press of earthquake shocks occurring in the Rhymney and other valleys, and although I have had no personal experience of anything of the sort, one cannot help wondering to what extent such tremors affect the soundness of pipe joints.

In order to obviate as far as possible the opening on to and repairing of the same joints time and time again we have experimented where shaking occurs with the concreting-in of the sockets; but although we found the results fairly satisfactory we have abandoned this idea owing to the method being both costly and cumbersome. We are now, however, giving a trial to the "Dresser" split clamp and rubber casket, which we find to be a very much more convenient and simpler way of

dealing with these leaking joints. This fitting has the effect of converting each joint into an expansion joint, and appears to overcome the trouble with shaken and drawn joints. If an extended trial of these fittings proves satisfactory it is probable that we shall fix them in considerable quantities.

The method we adopt to test the soundness of these attachments without opening-up the ground is to fix a ¾-in. standpipe to the bottom of which is fastened, by means of a backnut, a plate, roughly 12 in. by 12 in. by ½ in. This is placed on bricks immediately above the joint, thus leaving the bottom end of the standpipe clear, carried to the surface level and a suitable cast-iron road box fixed. It is then possible by removing the plug from the top end of the standpipe to detect any leakage which may be present. These, of course, are only fixed at intervals, and not over every "Dresser" clamp used.

Another joint to which we are giving a trial is the "Victaulic," which has been used on a length of 500 yards of 5-in. steel main. We found this joint to be perfectly sound under a test pressure of 60 lbs., but as this main has only recently been laid, I am not able to express an opinion as to its behaviour under low-pressure conditions. I am, however, very much impressed by the ease with which this joint is made.

In testing for leakages we adopt the usual method of barring together with the use of a diffusion indicator, but with the present more or less impervious surfacing of roads, it does not follow that the leakage is always to be found immediately below the spot indicated, and in this respect we have had some rather annoying experiences. A description of one of them will, I think, suffice to illustrate my point.

A complaint was received of a bad smell of gas in the front room of a house in Llanbradach. Investigation showed that there was no gas laid on to these premises, the nearest service being 60 ft. away. Careful and close barring around this service showed us nothing, the only place in which we got any indication of leakage being under the flooring in the house from which we had received the complaint, and here we did not need to use an indicator. As a last resort we decided to open-up the nearest service, which we found to be broken through, the escaping gas never reaching the surface, but travelling by way of an old stone culvert into the house 60 ft. away. A strange feature of this incident was that not the slightest trace of any gas leakage could be detected on the premises supplied by the broken service.

As I have already mentioned, the total length of mains in our area is over 100 miles, about 50 miles of which is steel, and I am firmly of the opinion that if the question of internal corrosion can be definitely and cheaply overcome—and the tubes are well protected externally—this type of pipe, with long rigid joints, is the most suitable for use in mining districts, where subsidence is more or less a daily occurrence owing to the lesser number of joints, coupled with greater flexibility and less liability to fracture, while a steel main with welded joints of which we have about 13 miles, provided, of course, that the welding is well done, makes an ideal pipeline.

I suppose you will expect me to say something about coke oven gas, but as this is more or less a controversial subject, I will be quite brief and simply express my opinion that the use of coke oven gas for town supply at a price and under proper conditions, is definitely a good proposition for the consumer, the shareholder, and the ratepayer, and I take the view that gas from bye-product plants will be used in the future for public supplies very much more than it is at present.

Exeter Share Issue.—The time allowed for tendering for the new ordinary shares of the Exeter Gaslight and Coke Company expired on May 14. When the list was closed it was found that the number of shares applied for largely exceeded the number offered. The highest tenders will be successful, but many will be disappointed.

Institution of Welding Engineers.—The Institution offer a prize of £10 10s. and the Gold Medal of the Institution for the best original paper offered by a *bona fide* operative welder, either oxy-acetylene or electric process. The subject of the paper is to be "Welding Practices and Methods, based on my own experiences." An entry form and full particulars can be obtained from the Secretary of the Institution of Welding Engineers, 30, Red Lion Square, W.C. 1.

Tenders for Gosport Stock Issue.—The tenders for the new issue of capital, comprising ordinary and debenture stock, which were offered by Messrs. A. & W. Richards, on behalf of the Directors of the Gosport District Company, were opened on May 13, the tenders in both cases exceeding considerably the amount of stock offered. Those for the ordinary stock ranged from £112 down to the minimum of £105 per £100, the average price being £106 16s. 6d. p.ct., and for the 6 p.ct. redeemable debenture stock from £104 per £100 down to the minimum of par, the average price obtained being £101 14s. 3d. p.ct.

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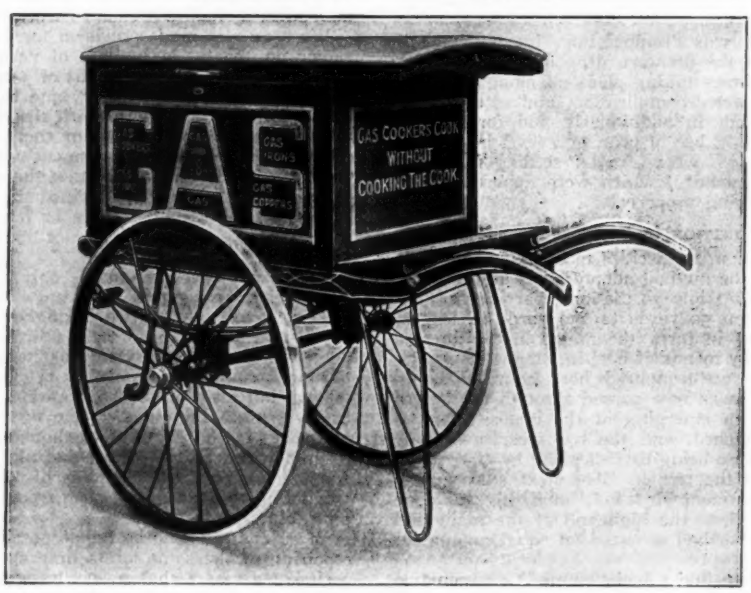

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Presidential Address of Mr. A. Gregory.

Eastern Counties Gas Managers' Association, May 16.

I would first like to repeat the thanks which I expressed at my election last October for the honour you have conferred upon me by placing me in the Presidential Chair. It is a compliment which I much appreciate, and I trust that during my term of office I shall be able to maintain the lofty ideals so ably established by my predecessors.

I am afraid that I have nothing sensational in the way of elaborate plant or novel processes to display, but, as many of you are in charge of works of similar size, perhaps an account of some of the problems encountered during my period of management may prove interesting.

The Harwich Gas Company is somewhat singular in its constitution. In the first instance it was created under a Deed of Settlement in 1854, and registered pursuant to the Companies Clauses Consolidation Act, 1845, and the Gas-Works Clauses Act, 1847. The Company never was really a Statutory Company; it had not a private Act, but adopted the rights and obligations for making and selling gas as contained in the Act of 1847, and the Deed of Settlement governed the internal management of the Company's affairs. In effect the constitution of the Company was such that the liability of the shareholders was unlimited—a most undesirable position for them had any unforeseen event occurred to raise the question. In addition, many of the regulations in the Deed were definitely restrictive—for instance, no shareholder was entitled to more than four votes, however great the number of shares he held; the reserve fund was limited to £500; not less than seven or more than ten days' notice of a general meeting had to be given, &c.

Provisional Orders were obtained in 1874, 1902, 1921, and 1923, but the additional powers acquired did not affect the constitution of the Company.

The reason for the decision to reconstitute the Company was that the development of the Borough of Harwich necessitated an extension of the Company's business with wider powers, and we were advised that the most satisfactory way to achieve our object, and thus place the affairs of the Company on more modern lines, would be to do away with the Deed of Settlement altogether and take steps to register as a Limited Company under the Companies Acts, 1908 to 1917. This was carried out in January, 1922.

I might add as a matter of interest that the change in the constitution of the Company has produced a somewhat strange position in which the Company, being empowered by Provisional Orders, is subject to the Gas-Works Clauses Acts, and, as it is also a Limited Company, to the legislation affecting Joint Stock Companies. As an example, the Companies Act of last year applies to this Company, and this involved certain changes in the form of accounts. The result is a compromise under which the revenue account is kept in accordance with the Gas-Works Clauses Act, while the balance-sheet is shown in the manner prescribed by the Companies Act.

On the Works.

The works, which are situated on the south side of Harwich Harbour, receive their coal by sea in vessels of from 300 to 400 tons capacity, discharge being by a Temperley transporter fitted with iron buckets which are carried direct from the hold of the ship into the coal stores. The position is equally advantageous for the handling of all bye-products, a railway siding running within a few feet of the boundary wall.

The carbonizing plant consists of seven settings of 10-ft. stop-ended horizontal retorts, five settings heated by semi-regenerator furnaces, and two by generator furnaces, with step grate type of fittings. There is a 6-in. retort house governor on the foul main, and the tar mains are fixed under the hydraulic main, and connected to a Meads reflux system at the end of the retort bench. The water gas plant is of the "K. & A." type, of a capacity of 250,000 c.ft. per day, and there is also a small Crossley producer gas plant.

The condensers, tower scrubbers, washers, and washer-scrubbers are of ample capacity, and there are two sets of exhausters of 15,000 and 10,000 c.ft. per hour. The three steam boilers are all fitted with forced-draught furnaces. There are six purifiers, two 15 ft. square by 5 ft. deep, and four 14 ft. square by 5 ft. deep, with Wecks valves, and a steam supply for use during cold weather is connected on the inlet main to the purifiers.

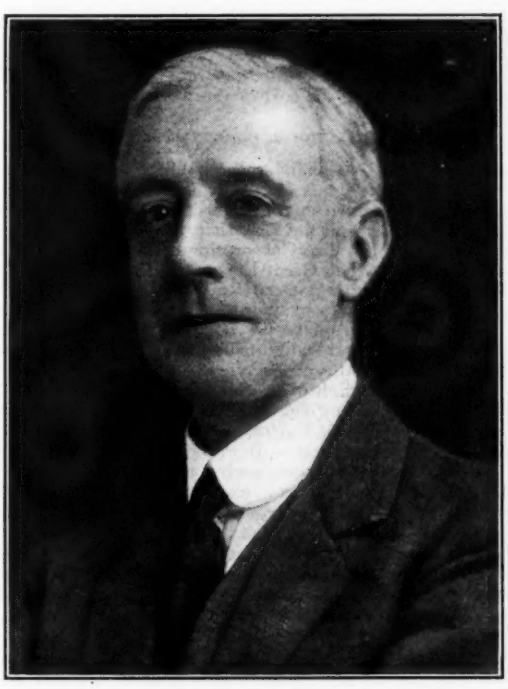
A Cort coke cutter, driven by a Crossley gas engine, is fixed against the outside wall at the north end of the coal store, and the same engine also drives a small lathe, drilling machine, and emery wheels in the fitting shop.

There are two guide-framed gasholders, one of 250,000 c.ft. and the other 150,000 c.ft. capacity, the former erected in 1913 and the latter in 1902; these, together with a small horizontal steam boiler, used for supplying steam to the holders in frosty weather, the station meter, two station governors, and a small Parkinson vaporizer, are situate on a piece of land about half-a-mile from the works.

The bulk of our crude tar is sent to London under a co-operative scheme, and the following are the average prices received from the distillers during the past five years:

1925	3·07d. per gallon
1926	4·21d. ,,
1927	4·44d. ,,
1928	3·76d. ,,
1929	2·84d. ,,

From the above must be deducted the cost of carriage, which in our case has averaged 0·55d. per gallon.



THE PRESIDENT,

A. GREGORY, Harwich.

Mr. Gregory received his early training in the Gas Department of the Salford Corporation, and before going to Harwich had charge of Gas Undertakings in Yorkshire and Derbyshire.

It is no longer remunerative to produce sulphate of ammonia, and the liquor is being sent to a neighbouring works.

The District.

The district is purely residential, without any large consumers, and the general policy of the Company is to give the best possible service. Consumers' appliances are examined periodically and kept in an efficient state of repair. All materials used are charged for, but no additional charge is made for labour.

In 1915, the Company purchased a piece of land in a prominent position in High Street, Dovercourt, and offices and showrooms, together with fitting stores and fitting workshops, were erected on the site. The showrooms have proved of great advantage and convenience to consumers, who are enabled to to inspect under working conditions the most up-to-date

methods of using gas for lighting, cooking, and heating. Appliances are supplied for cash, on hire purchase, or on simple hire. Of our consumers, 20 p.ct. own their own cookers, which are of a modern type mostly supplied on hire purchase; and this has proved an advantage by giving consumers the appliances they like, and reducing complaints.

The practice to-day of erecting about twelve houses to the acre when housing schemes are planned involves us, along with other public utility concerns, in considerable capital expenditure, and while one is sceptical of a quick return, good service, and every opportunity taken to increase it, will bring its reward.

The town of Harwich has been badly hit, as a result of the late war, by the loss of the very large floating population with its attendant shore following, and by the more recent withdrawal of all military units; the town has suffered not only in this important respect, but, owing to the movement of the population from Harwich to the outskirts of Dovercourt, considerable capital expenditure is needed even to maintain the existing consumption. New mains, meters, and stoves are required, and very frequently enlargement of the trunk mains to convey the gas greater distances.

In 1928, owing to the increased use of gas for cooking, it was found that the trunk mains were too small to provide an adequate supply of gas to all parts of the district, even with a considerable increase of pressure at the station governors, and we were faced with the anomaly of a decreased output and the necessity for larger mains; but this problem—*i.e.*, the increased cooking load—is one which all gas companies are feeling more or less, and, although in this case the total output of gas was less, the amount per hour was more. However, instead of its being spread over the evening for lighting, there was a concentrated load in the middle of the day for cooking, and it was decided to enlarge the trunk mains from the gasholders at Harwich to the main road, Dovercourt, a distance of 1548 yards; and unfortunately the gas main crossed the railway lines, which increased the cost of the work.

ELECTRICAL COMPETITION.

Electricity was first available for public use in this Borough in 1925, at the time when electricity was having valuable publicity, free of charge, from the Press and Government departments and officials, and the Electricity Supply Act of 1926 was under consideration. The Corporation of Harwich entered into a contract with the then Great Eastern Railway Company (now the London and North-Eastern Railway Company) for a supply of current in bulk from their generating plant at Parkeston Quay, and since that date we have had to face formidable competition. The first thing to go was the street lighting, speedily followed by the public offices and council schools, and part of our private lighting; also, electric motors were substituted for the gas engines used for generating electricity at cinemas and hotels. Of course, we expected to lose the public lighting, because the local authorities were bound to support their own scheme; and later, owing to the huge Press propaganda and ministerial efforts, electricity became the fashion, and people had it installed regardless of cost, or of any other consideration. However, we felt it most in the first two years; last year we had a slight increase in our output, and I am of opinion that we have now turned the corner and are on the upgrade again.

The charges for electricity are as follows:

Lighting.

(1) A flat rate of 6d. per unit *plus* a meter rent of 2s. per quarter.

(2) A prepayment 1s. in the slot meter will be installed if required.

Heating and Cooking.

For heating, cooking, and domestic appliances, other than lighting, 1½d. per unit, *plus* a meter rent of 2s. per quarter.

Rateable Value Tariff.

This tariff is optional, and is intended for domestic consumers who use electricity for lighting, heating, and cooking.

The charge consists of two parts, and is made up as follows:

(1) *Fixed Charge.*

(*a*) A fixed charge of £1 16s. per annum, payable by quarterly instalments in advance, for all houses having a net rateable value up to and including £12 per annum.

(*b*) Fifteen p.ct. of the net rateable value per annum, payable by quarterly instalments in advance, for all houses having a net rateable value over £12, and up to £60 per annum.

(*c*) For houses above £60 net rateable value per annum, 15 p.ct. up to £60 and 10 p.ct. on any amount in excess, payable by quarterly instalments in advance.

(2) *Unit Charge.*

A charge of 1½d. per unit on all units as metered.

Note.—This tariff is applicable to private households only, and is inclusive of meter rent. Consumers adopting this tariff shall continue to be so charged for a minimum period of one year.

Assisted Wiring Scheme.

The minimum number of lights is three, and the maximum six. The payment for the hire of this installation will be an addition to the flat-rate charge and meter rent for the time being in force. The hire charge shall be at the rate of 2d. per unit payable with the above charges, through a prepayment meter, until the total consumption of energy is equal to:

500 units for a 3-light installation
650 ,, ,, 4 ,, ,,
800 ,, ,, 5 ,, ,,
950 ,, ,, 6 ,, ,,

Incidentally, it may be suggested that the above charges may become common, even in small towns, when the electric grid is completed.

In meeting the competition from electricity and oil, we have been assisted in many ways by the British Commercial Gas Association, who responded immediately to our requests with helpful suggestions and advertising matter. Last year, with the aid of the "B.C.G.A." literature, we secured orders for the heating of six halls. I am pleased to say that the relations existing between the Corporation officials and ourselves are excellent; the same spirit also exists with the local builders and plumbers, to whom we supply cookers, geysers, and boilers for new houses. The good service we have endeavoured to give them has resulted in mutual satisfaction.

In addition to the formidable competition we have to face from electricity and oil, there is increasing competition in all the markets in which our products are sold. The revenue from sulphate of ammonia is practically *nil*. Tar is rapidly sinking; but with regard to this product the co-operative schemes have many advantages, and I think that something might be done to the benefit of all concerned by co-operation between the large works and their smaller neighbours, on the basis of the large works distilling the whole of the tar and sharing the profits, after deducting working expenses and interest on capital.

With regard to coke, competition with oven coke is at times very keen, but the recent increased use of central heating boilers has led to a very valuable outlet for coke when broken and graded to the proper size. At Harwich, by propaganda and advertising, we are now able to dispose of all our output, for domestic purposes, at remunerative prices, whereas previous to installing the coke cutting machine 50 p.ct. of our output was thrown on the open market and had to be sold for what it would fetch.

In contrast with the increasing competition in the products which gas undertakings have to sell is the development in the opposite direction in the materials which they have to buy. Examples of amalgamation and price agreements among manufacturers will spring readily to mind, and we are now faced with the prospect of a national marketing scheme for coal which is intended to restrict competition among collieries. In face of the rationalization of other industries it seems more than strange that the gas industry should still, to such a large extent, consist of scattered units.

EDUCATION SCHEME.

The recent revision of the regulations should assist students in the Eastern Counties, and I would urge all our members to take an interest in the subject and give their staffs facilities for attending classes, not forgetting the gasfitters, whose competence is of vital importance to their employers. In certain engineering works all the apprentices are compelled to attend classes at the local technical schools, being paid for their time, and their fees being paid for them.

THE SOCIAL SIDE.

Early in 1927 a Works Recreation Club was formed with a subscription of threepence per week, and a building formerly used for boat construction in a shipyard adjoining the works, which was purchased by the Company in 1925 to provide for future extensions of plant, was converted into a clubroom, with bathroom, lavatories, &c. This movement has been well patronized by the works and staff, and has done much to promote a good understanding between all sections of the Company's employees.

In bringing my address to a close, I feel that I may not have presented anything new or interesting to you; there is, however, one new experience concerning myself, and that is the extreme difficulty which presents itself in endeavouring to prepare a Presidential Address that will prove of interest to the members, bearing in mind the splendid addresses given by my predecessors. However, I thank you all sincerely for the courteous attention you have given me.

Competition in Rural Areas: How Can It Best Be Met?

By C. R. FOWLER, of Leiston.

[Paper before the Eastern Counties Gas Managers' Association, May 16.]

As many towns and villages in the country can expect, in the near future, to receive supplies of electricity from the super-power stations of the large towns it is well to consider what effect electricity may have upon small gas undertakings in urban and rural districts when current becomes available to consumers in their area of supply, also what methods might be adopted to meet this competition which, I venture to think, threatens the very existence of some of the small works unless early steps are taken to restrain the activities of our opponents.

Hitherto many gas undertakings with an output of under 20 millions per annum have been free from serious competition; some managers of the smaller works have considered the possibility of the introduction of a public supply of electricity into their districts as being very unlikely, owing to the distance from any large centre of supply.

THE ADVANCE OF ELECTRICITY.

Now, however, new conditions have arisen; transmission lines are rapidly appearing in many remote localities, and it seems probable that State-aided or rate-aided electricity will find its way into nearly every town and village during the next few years.

Those responsible for the management of small works well need be cautious when threatened with invasion by competition. It is important not to under-estimate the formidable resources of our rivals; they are out for business, and intend to get it if they can. In this connection an extract from a recent speech by Mr. H. Morrison, the Minister of Transport, at a luncheon of the British Electrical Development Association is of interest. He is reported to have said:

"The output of electricity in Great Britain has grown from 3600 million units in 1922 to 7600 million in 1928 . . . the probable output for 1929 is 8500 million. What is wanted is a universal and scientific push by all the supply undertakings, and a whole-hearted campaign on a national scale."

A week or two ago the Chairman of the County of London Electric Supply Company stated at the annual meeting that "the most intensive efforts have been made to popularize electricity for domestic purposes with great success, and that effort is to be continued throughout our area. Our head office recently dealt with 500 applications for supply in one day, mostly from outside areas which are proving so productive."

It has sometimes been pointed out, if not with pride, certainly with satisfaction, that the general experience has been for gas and electrical undertakings to prosper side by side. To some extent this is true so far as large towns are concerned, but in small places this dual progression cannot be expected, as there is not room for both services. In small towns it is a common experience to find that a considerable portion of the electrical company's business has been wrested from the gas company. In these circumstances it is a very difficult, expensive, and sometimes even an impossible matter to restore the output of gas to anything like its pre-competition quantity. There is a real danger in being self-confident that gas can hold its own when faced with lively competition in small districts. No good purpose can be served, and much harm may be done, by adopting a casual or indifferent attitude, by contenting oneself that owing to high charges for current people will not have it installed. It must not be forgotten that in small places the price of gas is often high. Apart from this, the charges for electricity are so attractively set out, and the actual cost so carefully concealed, that their tariff at once appeals—as it is intended to appeal—to those who, if it were quoted on a flat rate basis, would not think of having it.

PROGRESS IN THE GAS INDUSTRY.

We hear with a good deal of gratification, the enormous progress achieved by the gas industry each year. The total consumption increases by thousands of millions of cubic feet, and we in the small works are sometimes astonished to learn of large undertakings showing daily increases in output equivalent to the total make for many years in the companies we represent. When confronted with these figures we are apt to assure ourselves that all is well—as indeed it is, so far as the large and medium size works are concerned; but the present day position of the small undertakings leaves much to be desired.

According to the "Gas World" Directory for 1930 the make of gas in the United Kingdom increased last year by 3107½ millions. It is interesting to see what proportion of this increase was contributed by undertakings in England and Wales making not more than 100 millions per annum. The following information has been extracted from the "Gas World" Directories by comparing the make of gas for 1929 and 1930.

Statistics Relating to Undertakings Making not More than 10 Millions per Annum.

Number of undertakings		284
Total gas made, 1929		1424·3 millions
,, ,, ,, 1928		1421 ,,
Number of undertakings showing increase		83
,, ,, ,, ,,	decrease	53
,, ,, ,, ,,	no change	148
Total amount of increase		28·6 millions
,, ,, ,, decrease		25·3 ,,

Net increase—3·3 millions, representing 0·23 p.ct.

Statistics Relating to Undertakings Making Between 10 and 25 Millions per Annum.

Number of undertakings		189
Total gas made, 1929		3103·2 millions
,, ,, ,, 1928		3069·2 ,,
Number of undertakings showing increase		88
,, ,, ,, ,,	decrease	33
,, ,, ,, ,,	no change	68
Total amount of increase		62·9 millions
,, ,, ,, decrease		28·9 ,,

Net increase—34 millions, representing 1·11 p.ct.

Statistics Relating to Undertakings Making Between 25 and 50 Millions per Annum.

Number of undertakings		160
Total gas made, 1929		5529 millions
,, ,, ,, 1928		5402·2 ,,
Number of undertakings showing increase		97
,, ,, ,, ,,	decrease	33
,, ,, ,, ,,	no change	30
Total amount of increase		134·3 millions
,, ,, ,, decrease		7·5 ,,

Net increase—126·8 millions, representing 2·35 p.ct.

Statistics Relating to Undertakings Making Between 50 and 100 Millions per Annum.

Number of undertakings		131
Total gas made, 1929		9687·7 millions
,, ,, ,, 1928		9462·4 ,,
Number of undertakings showing increase		93
,, ,, ,, ,,	decrease	25
,, ,, ,, ,,	no change	13
Total amount of increase		243·7 millions
,, ,, ,, decrease		18·4 ,,

Net increase—225·3 millions, representing 2·38 p.ct.

It will be seen how little was accomplished last year by undertakings making less than 25 millions per annum. Out of 473 in this category no less than 302 made no progress; of these, reductions in output totalling 54·2 millions were recorded by 86 undertakings. The year 1929 was a favoured one to many, owing to the increases derived from the spell of cold weather in February. Small undertakings, however, are usually unable to participate to any extent in the benefits available to the larger works that are prepared to meet exceptional conditions upon short notice.

No doubt many of these little works have not been disturbed by electrical competition. When this is established the position of some will be very precarious indeed; without competition, conditions in small works are difficult; with it, they are likely to become hopeless, unless some remedy is found for combating the serious menace that threatens to overwhelm them.

LIGHTING—OUR COMPETITORS' POLICY.

It is no uncommon thing to find that as soon as a supply of current is available many of the shops and most of the better class houses quickly become customers; but recent experience in rural districts has shown that electric undertakings are no longer content to supply only those wealthy enough to afford the cost of equipping their premises. To-day they offer all sorts of attractive and accommodating terms from flat rates to assessment basis, rental wiring, and even free wiring for slot consumers, with a variety of charges for current. They also supply all kinds of appliances on simple hire or hire-purchase terms. This policy enables electricity to be introduced into working class homes, where it threatens to be a very powerful opponent to our interests.

We should unite in every way possible to keep electricity out of the homes of the artisan classes. A good deal of harm may result from eyestrain where bulbs are allowed to outrun their useful period of life and are not renewed as often as they should be. The electric companies are recognizing this, and

are doing all they can to popularize the opal or pearl bulb as giving a more agreeable light to see by.

Retention of Lighting Business.

It is to be regretted that in some quarters there is a tendency to regard the loss of lighting as inevitable; cases are known where no special efforts are made to retain the lighting load, concentration being almost entirely devoted to the development of output through cooking and heating appliances. With all due respect to our industry one cannot help thinking we are partly in the position we are to-day through lack of sufficient co-ordination among ourselves. Perhaps we are not quite sure what ought to be done to meet the abnormal conditions we have to face; it is certain, however, that no avenue that is likely to bring relief should remain unexplored.

When the merits of gas lighting as compared with electric lighting are examined it appears extraordinary that our rivals establish themselves so thoroughly. We are able to give a better light at less cost; a gas burner helps to warm and ventilate a room, and the supply is safe and certain. In spite of these advantages, lighting business is lost with very annoying regularity wherever there is a choice of both services.

The convenience of gas lighting requires, perhaps, more emphasis than it has in the past received. There are cheap, reliable distance switches on the market, which give gas lighting the same convenience as electricity in lighting and extinguishing. It is now worthy of serious consideration whether distance lighters should not form part of the standard equipment for at least the important rooms with every prepayment installation. Unless we are prepared to lose ground rapidly it is fairly certain we shall have to scrap some of our established customs and introduce new ideas. In small companies it is often very difficult, for various reasons, to alter existing conditions; but if progress is to be made, or even present business retained, new methods must be considered.

The retention of the lighting business to-day is an expert's job, and should be undertaken by specially trained men who could devote the time to tackle the problems in earnest; see that all consumers are satisfied; advise and improve where they are not; introduce a regular system of maintenance, and so on. But such methods as these are quite impossible on most small works without some sort of co-operation from outside.

Meeting Competition.

It is rather surprising to observe that so little has been accomplished by undertakings unhampered by statutory regulations towards restricting the activities of their rivals, and unfortunate that more undertakings have not provided facilities for the supply of electricity as well as gas in their districts, and by so doing eliminate competition altogether.

The time appears to be opportune for those responsible for the progress of small works to review the position and consider what best can be done to diminish the difficulties by which many of them are surrounded.

Probably no very great progress will be made all the time the price of gas is so high in small districts. Any loss of custom reduces the prospect of price reduction. Usually few, if any, economies are possible in a small works, and a smaller output is usually accompanied by an increase in cost of gas into holder. Something might be done by imitating our competitors' methods of charging, which appear to be so popular. For instance, the assessment rate is not novel in our industry, and could probably with advantage be applied by many small works.

In no respect can we afford not to keep up with the times. Do we in the small works avail ourselves to the fullest of the advantages provided by our Associations? The National Gas Council are ever active in our interests, and are at the present time considering means for dealing with our difficulties. The British Commercial Gas Association are always helpful with seasonable suggestions to guide us along the path of progress. It is sometimes said that these organizations exist primarily for the large works; but this is not the case. I venture the opinion that no undertaking, however small, can at the present time afford to remain outside their membership.

Group Control.

Within the circle of the Eastern Counties Gas Managers' Association much has been accomplished during the past three years by the united control of a number of undertakings, and it is probably by a sound system of central organization that the solution of many difficulties experienced by some of the small works may be realized. I believe I am right in saying that in our area this policy has been amply justified, and has conferred advantages upon all concerned.

On various occasions much has been written and said upon the possible benefits that would follow the closing down of a number of small works and distributing gas under high pressure from central stations, and, although long distance gas transmission has much to commend it in certain circumstances, it cannot, I think, be accepted as the proper course to adopt for small works in isolated positions, as the cost of linking up would, generally speaking, be out of proportion to any economies in working that might be expected.

It is, of course, well known that facilities—not necessarily confined to the Eastern area—exist for the central control of small works, where a reasonable return upon the capital employed may be anticipated after providing the necessary funds for development upon progressive lines. Those responsible for the conduct of small works would be well advised not to wait until they are overwhelmed by adverse circumstances before reviewing their position. There are indications of trying times ahead; many boards of small companies are shouldering heavy responsibilities which are likely to increase rather than diminish as time goes on.

Under such conditions it would be worth their while to consider seriously whether they would not do well to make some small sacrifices now, to embrace such opportunities as are afforded by amalgamation or absorption rather than face the severe financial difficulties in the near future. Even undertakings that are doing rather well should consider whether their prosperity is likely to endure under the competitive conditions that can be expected during the next few years.

Means should be provided whereby undertakings willing to consider amalgamation could be introduced to companies possessing the facilities for acquisition. So far as I am aware, no organized channel exists for that purpose. No doubt our Associations could do useful work in this direction in their own particular areas, or a small national committee formed to investigate the problems and possibilities associated with each undertaking that signifies a willingness to open up negotiations.

There appears to be no better means of consolidating our position than by getting together and uniting our resources in order to check the encroachments of our competitors. Not that amalgamations should be regarded as the whole remedy for reviving the prosperity of the small works, though at the moment this course presents itself as being the only convenient means for achieving the necessary co-operation which is so vital to the welfare of our industry.

Discussion.

Mr. Worthington Church said that, having purchased some nine gas-works, the paper was of interest to him. In the case of his largest works there was electrical competition, but instead of the output of gas going down it had gone up. He could quite understand that a large undertaking might be able to deal methodically with small places which had been neglected, and in such cases he agreed with Mr. Fowler; but where there had been no neglect, and the undertaking could offer a good commodity at a fair price, there was the advantage of the local element and personality which one could not get with a large undertaking. At any rate, he did not intend to get rid of his property because of competition from electricity.

A Smaller Gas Unit.

Mr. J. L. Butler (Retford) expressed the opinion that the gas industry was in a very happy position, inasmuch as the majority of the houses were not wired for electricity, but were piped for gas. Thus people would be likely to hesitate before putting down money for wiring. The British Commercial Gas Association had already done a lot of useful work for the industry, and he would suggest that every effort should be made, both individually and collectively, to let the man in the street know exactly what he was getting. Much was heard about electricity at 1d. per unit; while gas was sold at (say) 6d., 8d., or 1s. per therm. He suggested that both the word "unit" and the word "therm" left the "man in the street" cold. If he could be made to understand that for his 1d. he got 3412 heat units, whereas for 8d. for a therm of gas he got 100,000, so that in gas he obtained 12,333 heat units for 1d., as against 3412 for the same money in electricity, he would see exactly where he was. If the gas industry brought its unit down to approximate to the electrical unit, the general public would understand more clearly what they were getting. At present, because the units were different, it was not fully realized that the gas industry were prepared to give (say) four times as much as their competitor electricity.

Mr. T. V. Johns (Lowestoft) said he felt there was sometimes a danger in comparing the heat units in gas and electricity, unless the efficiency of the apparatus was taken into consideration. Without a knowledge of the comparative efficiency, price calculations might prove misleading.

Mr. W. W. Townsend (Colchester) remarked that the author suggested the formation of a small National Committee to investigate the problems and possibilities associated with each undertaking that signified willingness to open up negotiations. He would remind members that it was part of the official policy of the National Gas Council to encourage amalgamation. Sir David Milne-Watson had many times exhorted undertakings all over the country to realize that competition was upon them, and to strengthen themselves by uniting. The matter was remitted to the District Boards with the idea that they should do exactly what Mr. Fowler suggested. When, however, it was tried it was found in every case he knew of to be practically unworkable. There were so many personal questions involved. Notwithstanding there were difficulties, he was quite in agreement with Mr. Fowler that an attempt should be made to overcome them, and he could only hope that enlightenment would proceed far enough to enable undertakings to perceive in which direction their true interests lay.

Look on the Bright Side.

He wished the author had done more to paint the bright side of the picture; the paper appeared to be nearly all gloom. It was all very well to "look facts in the face," but with a good article at a fair price there was no reason for a small undertaking to fear difficulty in selling gas under competition. If they looked after the con-

sumers, and gave them gas at an adequate pressure, and of an even calorific value, and were business-like in their methods, even a small works could face competition and overcome it. [Applause.]

Mr. G. A. MALLETT (Ipswich) asked whether the author could tell them of a place in the smaller areas, where electricity was sold at 1d. a unit. He himself had never found one. In the smaller places, the 1d. unit was a bogey, and they ought not to repeat it. The author hinted at gas switches as a part of the standard installation for prepayment consumers; but this was going to cost money. Instead of the switch, he suggested that they should maintain incandescent burners in proper condition. This was the way to keep out electricity. Everything possible had not been done to keep electricity out of houses. Some engineers did not encourage lighting as they ought to do. They had been too easily frightened on this point. He was afraid that if an organization was set up to promote amalgamation, it would defeat its object.

Mr. F. M. PATERNOSTER (Felixstowe) also referred to the pessimistic outlook of the author. There need be no fear for the small works, if the engineer educated the Directors in the way they should go. The trouble was that so many Directors were not technical men. If the engineer of the small works made it clear to his Board that proper service was essential to fight competition, gas would be successful. It was not the general feeling in the Eastern Counties to be pessimistic regarding the future.

Mr. C. J. ROBINSON (Walton-on-Naze) voiced the opinion that people were getting lazy; and that it was through laziness that lighting had been lost. People would not even take the trouble to strike a match, if they could obtain a light by pressing a button. There was no reason whatever why gas should not retain the cooking and heating loads.

Mr. E. F. KEABLE (Southtown) said that in his district he was up against very keen electrical competition, and it was going to be worse. One point he might mention was that some three years ago an intensive free wiring campaign was entered upon, and in spite of good service he lost a considerable amount of lighting in working class houses; but within eighteen months they had got 200 or 300 of these consumers back to gas lighting. If the matter was tackled in an efficient manner, the trouble was not so serious as it might seem at first sight.

Mr. W. GROGONO (Croydon) said that his district was served by a most efficient generating station, but Croydon was still enjoying an increase in gas output. They were doing what they could to help electricity, and electricity was reciprocating. They supplied him at ½d. per unit, so that he got cheap power; and this was helping electricity in the same way that it was helping the gas industry.

Mr. P. D. WALMSLEY (Great Yarmouth) bore out what Mr. Keable had said. There was one peculiar thing which he found it difficult to account for. Through the assisted wiring scheme, he had lost the lighting of several hundred consumers, but strangly enough the average consumption per slot meter was slightly higher than was the case before this lighting was taken away.

Mr. H. SAVILLE (Leeds) said one point about the small works was that it was difficult to get a man who was good on the administration side and was also good in the retort house. He quoted a case in which three-light cluster burners at a reasonable price had gone like "wild fire" among electricity consumers; and this, he said, showed that a man had scope in a small place if he would put his back into the task.

Mr. A. J. UNDERWOOD (Braintree) urged the importance of being first in the field. If they could keep out electricity for one purpose, it would not steal any of their other business. They should point out to people not only the advantages of their commodity, but the disadvantages of others. The best customer was the slot consumer, and if he wanted something better they must treat him liberally.

Mr. FOWLER, in the course of a brief reply, said he had mentioned in his paper that on the whole the gas industry was making very good and satisfactory progress. There was no need for pessimism so far as large undertakings were concerned, but his paper related purely and simply to small works. He did not know an undertaking selling electricity at 1d. per unit in the circumstances referred to in the paper. In his own case the output of gas was increasing; but if they had had to carry on without the support of the British Gas Light Company, they would not have occupied the position they did to-day.

The Hong Kong and China Gas Company, Ltd.

The Annual General Meeting of the shareholders was held at the Company's Offices, 148, Gresham House, Old Broad Street, E.C., on May 12—Mr. ROBERT H. GLEN, F.C.A., Chairman, presiding.

The SECRETARY (Mr. A. C. Pullen) read the notice convening the meeting and the Auditors' report.

The CHAIRMAN: Gentlemen, copies of the report and statement of accounts having been sent to all the shareholders, I will ask you to take them as read.

The Directors were compelled to mention that the sales of gas at Hong Kong decreased by 13 million c.ft. during the year, the quantity sold being 184 millions, as compared with 197 millions in 1928. The sales for Kowloon Works were about the same as previously—viz., 54 millions. These results are very disappointing to your Board, but the Company was handicapped by the adverse conditions of trade in the Colony, also by a shortage of water. Instructions for a special intensive canvassing campaign were given at end of each year and we have hopes that considerable new business will be forthcoming as a consequence. The supply of water was restricted during several months of last year to four hours per day and the use of gas geysers and other apparatus for heating water was in consequence limited. It may be of interest if I here mention that the scheme for bringing water from the Shing Mun River on the mainland and from reservoirs at Kowloon across the harbour is now an accomplished fact. The official opening of the harbour pipeline took place about six weeks ago.

Exchange has gone badly against us. The average rate of the dollar for our book purposes over the year was 1s. 10¾d., but our local assets on Dec. 31 were written down to 1s. 7½d. and the rate is now round about 1s. 6d. The Board, therefore, most reluctantly have felt compelled to increase the price of gas from $2.50 to $3.00 per 1000 c.ft. as from 1st inst.

The number of street lamps lighted by gas at Dec. 31 was 2409, an increase of 16. We have constantly endeavoured to improve the public lighting and to maintain it at a high standard of efficiency.

On turning to the accounts, the additions to land, works and plant account are seen to be £4038, practically all of which is for new mains and services.

In the revenue account, coal carbonized is $211,717, as compared with $246,873, a decrease of $35,156. The quantity used was about the same as before, cost per ton being less, but the make per ton at both works showed a diminution.

I need hardly add that the question of our coal supplies is always under earnest consideration.

The charge for C.W. gas was more, as the proportion of same made was higher. I referred last year to the fact that water gas is expensive, but we have not yet found a market for all our coke.

Working expenses are shown as less than last, but I stated on a previous occasion that discounts would be taken from this account and deducted from gas rentals for the future.

I do not think any comment is necessary on the many accounts grouped under this head.

Maintenance of retorts account represents the re-setting of No. 2 verticals at Hong Kong and some re-setting of horizontals at Kowloon. We have appropriated £2040 from the retort reserve because of this work.

Maintenance of works was higher; there were special repairs and overhauls of boilers and scrubber, extensive painting, &c.

Publicity cost more, as the advertising was on a larger scale.

Bonus to staff and workmen was less on account of reduced profits.

Gas rentals were lower, mainly because of the reduced sales.

Meters and fittings rentals were about the same.

Residuals show a decrease, the principal reason being that the price of coke has been much reduced.

In the net revenue account we have charged an amount of £4546 for scrapping obsolete stock. It is necessary to carry rather heavy stocks on works, but considerable correspondence has been passing with a view to values of such being on a sound basis.

I would point out that, in the general balance-sheet, it has been necessary to appropriate a large portion of the reserve for exchange, because of the much lower value of the dollar at end of the year.

The balance-sheet also shows that our cash, stores, debtors, and investments amounted to £64,639; the cash liabilities were £14,030, showing a surplus of £50,609.

I think further comments on the accounts are not necessary, but shall be pleased to answer any questions you may desire to put to me thereon. The balance of net revenue is £43,747 14s. 11d., and a dividend of 10 p.ct. per annum, *less* income-tax, is recommended. From this would be deducted, of course, the interim dividend of 5 p.ct. paid free of tax on Oct. 17, 1929.

One further matter I would mention is that of our business at Kowloon. The largest sales we have had there were in the year 1927 and amounted to nearly 57 millions; the total sales for 1928 and 1929 were under 54 millions for each year. But for the first four months of this year we are 3½ millions up as compared with the first four months of 1928. Of course, that does not sound very much, but Kowloon is developing and the Board are giving anxious thought to the possibilities for gas and to the capacity of our present works there.

With these remarks, I have pleasure in moving that the report and accounts be received and adopted.

Mr. ALEX. A. JOHNSTON seconded the resolution and, after questions had been asked and answered regarding the possibilities for increasing gas sales at Hong Kong, the capacity of Kowloon Works if larger outputs are required there and the effect on the Company's business of the disturbed state of China, the motion was carried unanimously.

The CHAIRMAN then moved the following resolution:

> "That a dividend at the rate of 10 p.ct. per annum, *less* income-tax, be declared for the year ended Dec. 31, 1929, from which will be deducted the interim dividend paid free of tax on Oct. 17, 1929, the warrants to be made payable on 16th inst.,"

which was seconded by Major HERIOT R. GLEN and unanimously carried.

The re-election of Mr. Alex. A. Johnston as a Director of the Company was proposed by the CHAIRMAN, seconded by Mr. STRACHAN C. CLARKE and unanimously carried. Mr. JOHNSTON thanked the shareholders and said that his re-election was a great pleasure; there were many problems before the Board in which he would be glad to assist.

Mr. R. M. LONG proposed the re-election of Messrs. Cash, Stone, & Co. as Auditors for the ensuing year at their usual fee, which was seconded by Mr. STRACHAN C. CLARKE and carried unanimously.

The CHAIRMAN proposed a vote of thanks to the staff in Hong Kong and London, which was seconded by Mr. R. M. LONG and unanimously carried. Mr. LONG proceeded to move a vote of thanks to the Chairman and Directors, which was carried by acclamation and the proceedings then terminated.

Parliamentary Intelligence.

[From Our Special Correspondents.]

House of Lords

Private Bills.

The Brixham Gas and Electricity Bill was considered by the Committee on Unopposed Bills on May 20.

The Hartlepool Gas and Water Bill has been read a second time, and it awaiting commitment.

Special Orders.

Special Orders on the application of the Borough of Redcar and of the Woking District Gas Company have been laid before the House and referred to the Special Orders Committee.

Coal Mines Bill.

In the Committee Stage on the Coal Mines Bill, the Earl of Halsbury moved an amendment to provide that the Committee of Investigation should report to the Board of Trade any provision in a scheme which was unfair or inequitable in its operation.

Viscount Hailsham, speaking in support, gave the following illustration. Supposing that they should find that a gas company was being charged a price which was very excessive for its fuel with the object of compelling the consumers to buy coal and give up their gas heating. Unless they were satisfied that this was contrary to the public interest they could not make a report that the complaint was well founded, however gross the excess was.

As a result of the discussion, Lord Thomson, on behalf of the Government, accepted the amendment on the understanding that he might put down a further amendment to it on the Report Stage.

House of Commons.

Gas in Council Houses.

Mr. D. G. Somerville asked the Minister of Health whether any cases had been brought to his notice in which local authorities had insisted upon the supply of electricity in Council houses being preferred to the exclusion of any gas installation of any sort, and what attitude the Ministry was adopting in cases of this nature.

Mr. Greenwood said he had received some representations to this effect. The matter was one within the discretion of local authorities.

Private Bill.

The petition of the West Riding County Council against the South Yorkshire and Derbyshire Gas Bill has been withdrawn. The Bill has been referred to a Committee of the following M.P.'s: Mr. Gibbins, Chairman, Sir Douglas Newton, Sir Herbert Cayzer, and Mr. Egan.

Special Order.

Plans have been deposited in connection with the St. Helens Gas Order.

Legal Intelligence.

Gas Light and Coke Company *v.* Clements.

In the Chancery Division on Monday (May 12), Mr. Justice Luxmoore heard an action by the Gas Light and Coke Company, in which they asked for an injunction to restrain Mr. Gwladyr Browne Clements, of 16, Victoria Road, Clapham, S.W., from carrying on a business, either in Horseferry Road, Westminster, or elsewhere, under the name or style of the Metropolitan Gas Light and Stove Company, or any other style phonetically like that of the plaintiffs. Further, the action asked for an injunction to restrain the defendant from selling articles, or dealing in them, in such a manner as to lead to the belief that he represented or carried on a branch business of the plaintiff Company.

Mr. Spens, K.C., and Mr. Andrews-Uthwatt were for the Gas Light and Coke Company, while Mr. Cox Sinclair was for the defendant, who pleaded in his defence that he began business in 1925 as a dealer in gas lighting and stove appliances. He said that the chief accessories he supplied were gas regulators and heating and cooking apparatus, and also that his premises in Horseferry Road were some distance from those of the plaintiff Company and had no similarity thereto.

Mr. Spens, opening the action, stated that the plaintiffs' case was that not only had confusion been caused by the similarity in names, but that the defendant's business was being carried on in such a way as deliberately to deceive the plaintiffs' customers and the general public by inducing them to believe that they were dealing with the plaintiff Company or a branch or subsidiary business of theirs. Since 1925 Mr. Clements had used 45, Horseferry Road for his business, which he had also carried on for some time past at 105, Horseferry Road.

His Lordship asked if Mr. Clements desired to continue to use that name. "It is quite plain that he should not do so," his Lordship added.

Mr. Cox Sinclair replied that the name, as it stood, was quite liable to give rise to misapprehension.

His Lordship: "Not liable, but absolutely certain to."

Mr. Cox Sinclair remarked that in those circumstances it seemed impossible to argue that Mr. Clements ought to continue, having regard to the considerable body of evidence of highly creditable witnesses. But Mr. Clements contended that plaintiff Company's submissions were too wide.

A consultation then followed, but, in the end, Mr. Cox Sinclair stated that Mr. Clements required time to consider the matter.

Evidence was then called for the plaintiffs.

Sir *Walter Gilbey*, who occupies a flat at 22, Down Street, Mayfair, stated that during last summer the defendant called on him. He placed his card upon a table, and stated that he came from the Gas Company. He then explained that he could sell an apparatus that would save 25 p.ct. of his gas consumption if he would have it installed. As he (witness) had dealt with the Gas Light and Coke Company for 45 years he gave consideration to the matter. Mr. Clements said that many people in the neighbourhood, including the tenants of eight flats in a block, were having the apparatus installed. Witness told him that, in those circumstances, he probably would have the apparatus introduced into his premises. Mr. Clements then suggested that, if the gas stove was not up to date, it would pay him to have a new one put in at the same time. He (Sir Walter) thereupon gave orders for the whole of that work to be done. It was carried out after some time and at considerable expense.

Asked if it saved his gas, Sir Walter replied that that was just what it did not do. When his account came in last quarter it seemed rather higher than usual, and it was higher than the account for the corresponding quarter last year. He at once communicated with the Gas Light and Coke Company, and up to that time he had not the slightest idea that he was not dealing with that Company. Defendant, he remarked, seemed very plausible.

In answer to questions by Mr. Cox Sinclair, Sir Walter said he saw the words "Gas Light" upon defendant's card, and he thought that defendant came from the Gas Light and Coke Company. He found that neither the gas stove nor the apparatus was satisfactory.

Mrs. *Joan Kelly*, an authoress of 113, Sloane Street, S.W., stated that a little more than a year ago a man called on her and handed her a card. Looking at it casually she saw the words "Gas Light" upon it. He questioned her about her gas stove, and she replied that it was quite new, that she had it on hire from the Gas Light and Coke Company, and was satisfied with it. He then mentioned an appliance he wanted to sell called a "gas governor" that, he said, would save 40 p.ct. of gas. She commented on the strange idea of the Gas Company that they should want to save customers the expense of using gas they desired to sell, and asked why it was. His answer was that the Company wished to popularize gas as much as possible, and this was one of their ways of doing it. A few days later a "gas governor" was fixed while she was absent from her house, and the man called the next day with a bill for £50. She refused to pay and spoke to her husband, who consulted a solicitor. The apparatus ultimately was removed. She admitted that it was not Mr. Clements who called on her.

Mrs. *Williams*, the wife of Mr. Charles Williams, M.P., of Tufton Street, Westminster, stated that, in March, 1928, a man called on her asking whether she had noticed that her gas bills were high. She admitted that she had, and he introduced a thing he called a "governor," which would fit on the gas pipe and prevent waste. Looking at his card she thought he came from the Gas Light and Coke Company. She ordered the appliance. He quoted £15 for the "governor." The apparatus was fitted in her absence, and, later, she received an account which was for a greater sum than she expected to have to pay. So she communicated with the Gas Light and Coke Company asking for an explanation, and then realized that there had been a mistake. The appliance was not, in her opinion, satisfactory as the gas bills were higher after its installation. She saw "Gas" and "Light" on the man's card, but did not notice the words "Metropolitan" and "Stove." The man told her that the close proximity of her house to the river had some effect on the gas consumption.

Mr. *Fredk. A. Denny*, a Company Director, of Down Street, Mayfair, stated that a man called on him and said he had been shown his gas meter by the maid. He suggested that the fitting of a "governor" would save £20 yearly in gas. Thinking that the man came from the Gas Light and Coke Company he ordered the apparatus. The man said the price would be £50, but it would soon be paid for in the reduction of gas consumed. The apparatus

was fitted and the bill was quickly rendered. He was about to write a cheque when he saw "Gas Light and Stove Company" on the account. He then ordered the Company to remove the "governor." He had seen "Gas" and "Horseferry Road" on the man's card, and that influenced him in deciding to purchase the article.

After other and similar evidence was heard the Court adjourned. On May 13, Mr. Spens announced that the action had been settled. Certain suggestions in writing had been made by the plaintiff Company to the defendant which, subject to certain small alterations, the defendant had signed. The parties were, therefore, now prepared to take a consent order. The action had been brought by the Gas Light and Coke Company not only to prevent such damage as was occurring to themselves, but from the more important point of view of protecting customers from what had been going on, as they said, improperly. The undertakings which the defendant had given would, in the plaintiff Company's view, protect them and their consumers almost more satisfactorily than if they had obtained the full relief sought in the action. Mr. Clements had undertaken:

(1) That he would not directly, or indirectly, carry on, or be engaged, either as proprietor, director, or employee, or otherwise, in any business which sells or supplies any article used in connection with the use or distribution of gas where any office or premises in Horseferry Road was occupied for the purpose of that business.

(2) That he would not directly, or indirectly, carry on or be engaged in such a business elsewhere within a radius of twenty miles from the plaintiff Company's offices in Horseferry Road, unless such a business was carried on under a name which did not include the words "Metropolitan" or "Light," but did include the name "Clements" or "Barry," or the name of any other person as the first or distinctive part of the title.

(3) That he would not in any way represent that any such business in which he might be concerned was the business of, or branch of, or otherwise connected with the Gas Light and Coke Company.

Mr. Clements further undertook, within fourteen days, to change the name of his Company so as to comply with undertaking No. 2, but he would be at liberty to carry on under the changed name until Dec. 1, 1930, or until the date of the earlier determination of his lease of the premises at 105, Horseferry Road.

Mr. Justice LUXMOORE said that on the giving of such an undertaking by the defendant there need be no order in the action.

Mr. COX SINCLAIR said that after hearing the evidence of the plaintiffs' witnesses it was clear that the name of the defendant's business, by itself, was the cause of the confusion which had come about, and it was more than possible that persons in the defendant's employment might have exceeded their instructions. Defendant was willing to change the name of his business to prevent any misconception, and he would cease to operate in Horseferry Road itself. Plaintiffs did not ask for costs or damages.

Mr. Justice LUXMOORE said he had no objection to the form of the undertaking.

Croydon Gas Company.

Co-Partnership Gathering.

The presentation of long-service awards to three Directors (one of whom was the Chairman), the General Manager, and fifteen members of the staff, one of whom has recently been pensioned after fifty years' continuous service, marked the occasion of the annual co-partnership gathering of the Croydon Gas Company, held at the North End Hall, Croydon, on Monday, May 12—the CHAIRMAN OF DIRECTORS, Mr. William Cash, J.P., F.C.A., presiding.

The Chairman's Address.

Mr. CASH, in the course of a few remarks, preparatory to submitting the adoption of the co-partnership annual report and accounts, said he took the opportunity of welcoming, on behalf of the Directors, all those present. They were glad to see the Hall so well filled that night, as it was an indication that this annual gathering had not lost any of its popularity.

Their co-partnership scheme, he continued, came of age this year, for it was now 21 years since the scheme was first launched. He recalled how one of the first steps taken in connection with the scheme was the holding of a meeting in the stove shops at Waddon.

Turning to the accounts for the year ended March 31 last, Mr. Gash remarked that there was nothing particularly new about them. They went through the accounts every year, and they were designedly prepared on similar lines. The bonus was at the same rate as last year—namely, 7 p.ct.—being the average rate at which dividend was paid on the sliding-scale stock of the Company for 1929. The total amount of the bonus they had distributed was £11,954, and it was satisfactory to note that the balance to the credit of co-partners at March 31 was £34,000. The nominal amount of the Company's stock standing in the names of co-partners and annuitants was nearly £28,000. The number of co-partners retiring on pension during the year was ten. In the accounts this year was included a section relating to the widows' and orphans' fund. There were nineteen names under this scheme, while benefits had also been paid in respect of eight children. This section, said Mr. Cash, was added at their special request, and it must be of great satisfaction to them that the section was now operating.

The next paragraph in the report dealt with those who had passed away during the year. There were ten whose deaths were recorded, and he would ask those present to stand for a moment as a mark of respect to their memory.

Last year, went on Mr. Cash, ten long-service awards were presented, and that night they would see that they had fifteen more to present. There were now 182 men who had served with the Company for twenty-five years and upwards. That showed that the Company were served by people who were content to remain in their service, and was testimony to the fact that the service was run on lines which were appreciated by those who served them.

Mr. Cash then made reference to the Company's sports activities, saying that there were now 553 subscribers to the Company's Sports Fund. The number of subscribers to the Co-Partnership Magazine was also very satisfactory, and he would like to congratulate Mr. Coates, who had been Editor for two years, for upholding the standard. He worked very hard and fully merited their thanks for all that he had done.

CROYDON NURSING SERVICE.

Mr. Cash then referred to the formation of a Nursing Club as an outcome of the suggestion made by the Chairman at the Co-Partnership and Works Joint Committee meeting held on Dec. 20, 1929. This had been formed in connection with the Croydon Nursing Service for the benefit of employees and their families who reside in the Borough of Croydon. Eighty-three employees had joined the Club. The statement showed, continued Mr. Cash, that more had been contributed to the local hospitals, including a special donation of £100 to the Croydon Hospital Building Fund, the total amount paid out last year being £334. But they were not satisfied to stop there, said Mr. Cash. The hospitals appreciated the help they gave them.

Dealing with various items in the accounts, Mr. Cash said that the total bonus was £11,954. The balance to the credit of co-partners at March 31, 1929, had been £32,321. The pension fund started with a balance of £195,246, and members had paid in by direct contributions and from their bonuses a total of £9859, while the Company had contributed a sum of £10,499, together with a special contribution of £10,000. They had paid out, in respect of pensions to 69 members, £6649, and 41 members had resigned or left the service. So they had now a balance of £226,673, which was an increase over the previous year of £31,427. A total of £77,198 was in the hands of the Company. A sum of £149,475 was invested in first-class investments outside the Company, which, notwithstanding depreciation, were worth £1500 more than they gave for them.

THE FORTHCOMING AMALGAMATION.

Mr. Cash then went on to speak of the forthcoming amalgamation between the Company and the undertakings of the East Surrey Gas Company and of the Oxted and Limpsfield Gas Company, Ltd. Their own sales of gas in 1929, he said, had been 2878 million c.ft.; that of the East Surrey Company was 470 millions; and of the Oxted Company about 40 millions. So that, provided they obtained the agreement of the shareholders and the Board of Trade, from whom permission for the amalgamation would have to be obtained, they would increase their sales from 2878 millions to very nearly 3400 millions. More remarkable than that, however, were the figures relating to the areas served by the Companies. Their own present area was about 70 square miles. That of the other two undertakings was 130 square miles. They would therefore have to cover a total area of 200 square miles. They proposed, in view of this larger area, to change the name of the Company from the "Croydon Gas Company" to the "Croydon and East Surrey Gas Company." This seemed proper, and emphasized the fact that it was an amalgamation. They were carrying out this amalgamation because they would become more efficient in matters of gas manufacture and distribution. A small Company like the Oxted undertaking would be able to enlarge their outdoor staff in the same way as they themselves had. In regard to distribution, their areas to-day ran very close to one another. The East Surrey Company were at Chipstead, and their own mains also ran up to Chipstead. They would thus be able to relieve the pressure at the East Surrey Works. Ultimately, stated Mr. Cash, a considerable portion of the gas would be distributed from Waddon.

This amalgamation would mean better service, and would help their workpeople in the outside areas. It would also be of advantage to the shareholders on account of the sliding-scale. And they as shareholders would obtain some share in that.

In following this procedure they were only doing something which was being done in the distribution of electricity—where current could be produced in the cheapest and best way; where manufacture was centralized; and where distribution could be carried out from one source.

RECENT EXTENSIONS AT THE WORKS.

Last year, continued Mr. Cash, under the advice of their Engineer, Mr. Grogono, they carried out a large extension in the erection of an intermittent vertical retort plant of a capacity of 3¼ million c.ft. per day. The main feature of this class of retort was the very much less space occupied compared with the old-fashioned horizontal retort. For example, these retorts occupied the space of a 1 million horizontal retort installation. With this they had also installed additional coal and coke handling apparatus.

At the present moment they were engaged in enlarging their carburetted water gas plant, which would, when completed, give them a total gas producing capacity of 20 million c.ft. per day, which figure compared with an output in February, 1929, of 16 million c.ft. in one day.

COMPETITION.

Their total business last year increased by 6¼ p.ct., or by 170 million c.ft. of gas sold. They were faced with very keen compe-

tition, however, both from oil and electricity; but, nevertheless, they were not really downhearted. In the last quarter of a century the total sales of gas in thousands of millions of c.ft. had increased from 160 to 321. In connection with the matter of electricity and gas, he did not want to say anything more about competition or say anything against electricity or in favour of gas—because there was room for both.

Mr. Cash went on to quote some figures in regard to competition, from the April issue of the British Commercial Gas Association's "Bulletin," which stated that while it would be foolish, and unpatriotic into the bargain, to decry or regret the great strides being made by the electric supply industry, it could not be too often driven home to the public that as that industry was only beginning to occupy its proper place in the nation's economy, a very small real increase in its work looked enormous when expressed in terms of percentages. Two examples taken at random from some recent figures of domestic electrification might be quoted as examples. The number of electric cookers in Dover increased last year by over 20 p.ct. It was quite safe to say that the number of gas cookers did not increase in anything like that proportion. But there were 44,000 people in Dover; of these only one in eight consumed any electricity at all, and even now there were only 92 electric cookers in the whole place! Similarly in Bolton there was also a 20 p.ct. increase, but there were 178,000 people in the town, only one in ten was a consumer of electricity, and there were still only some 300 cookers between them!

THE NEW WORKSHOPS AND SHOWROOMS.

Another matter he would like to refer to, said Mr. Cash—another step they had taken last year—was the erection of the new workshops in Purley Way. His colleagues on the Board had paid him a very great compliment in calling these the William Cash Workshops; he was most gratified, and he would like them to know that he appreciated that compliment very much. In these workshops they were carrying out tests on the apparatus they sent on to the district—both as to safety and efficiency. There was one point to be remembered, however, and that was that as they sent out more efficient apparatus it was bound to have an effect on the quantity of gas they sold.

Mr. Cash also mentioned the new showrooms recently opened at Wallington, which, he said, reflected great credit on the Company. They were opened by Mr. A. E. Bennetts, Chairman of the Beddington and Wallington Urban District Council [see "JOURNAL" for March 26, p. 818], and representatives of the Co-Partnership Committee joined the Directors in welcoming Mr. Bennetts. They were able to tell Mr. Bennetts about their co-partnership scheme on that occasion.

THE COAL QUESTION.

On the question of coal supply, continued Mr. Cash, of course, anything which helped one industry, but had the effect of raising the price of coal, must affect them adversely and must tend to keep the price of gas up. If it was necessary to do these things, then let everybody suffer alike. The burden should not be put on the shoulders of the public utility services.

The price of gas had been reduced by 0·2d. per therm, which had brought it down to 9d. That would enable them to pay a dividend of £7 2s. 6d. p.ct. They would also be interested to know that the Company were able to pay a 7 p.ct. dividend; carry £7000 to the reserve fund; and £10,000 to the renewal fund, and carry forward £11,000 more than was brought in. The financial position was satisfactory, and 1929 had been what he might claim to be a good year.

Finally, he wanted them to realize why they were all there that night, and to realize what it was they were trying to do. "What does co-partnership involve?" asked Mr. Cash. It involved working together and sharing together; and then he thought it meant working and sharing together in the hope of reaching success. Were they giving satisfaction to those whom they served? This was the aim that they all wanted to keep before them. If they did that, he was quite sure they were working on the proper lines, and they would go on and prosper as they had done in the past.

Long-Service Awards.

Mr. Cash then presented long service awards to the following:

J. L. Winborn (Collector), pensioned April 12, 1930. Special presentation of a gold watch on the completion of 50 years' service.

25 Years' Service Awards: W. Ashby (Sub-Inspector, Caterham); R. N. Astington (District Fitter); W. E. Doubell (Clerk, Distribution Department); P. Duncton (Lamplighter); M. L. Goldsmith (Showroom Assistant); Mrs. H. E. Histed (Office Cleaner, Katharine Street); W. Lawrence (Chief Clerk, Rental Department); A. Newman (Prepayment Collector); A. R. Peckham (District Fitter); W. J. Sandeman (General Manager); T. H. Thompson (Chief Clerk, Distribution Department); G. L. Walker (Clerk, Secretary's Department); J. C. Waters (Chief Meter Inspector); E. Wedlake (Retort House Foreman), pensioned Feb. 28, 1930; and A. J. Young (Prepayment Collector).

In making the presentation to Mr. Winborn, Mr. Cash said that, so far as he was aware, this was a record in the history of the Company. [Applause.] In making the presentation to Mr. Sandeman, he said: "We have told the shareholders, and we have told the public, and you all know what sort of a chief you have got; and with that I need not say any more. We have the greatest regard for him."

PRESENTATION TO DIRECTORS.

Mr. CASH then said that at the last Co-Partnership Committee Meeting, it was found that there were three Directors who had served the Company for more than 25 years; and it was asked why Directors should not have certificates. Therefore the Committee agreed that it would be fair and reasonable that these three Directors should receive certificates.

These Directors were Mr. Hussey, Mr. Rigby, and Mr. Cash.

Mr. Hussey, said Mr. Cash, was elected a Director in the year 1890, and was Chairman of the Board from Feb. 10, 1892, to March 16, 1923. So he was Chairman for more than 30 years and a Director for nearly 40 years. It would be difficult for anybody to tell adequately of the advantages which had come to the undertaking while Mr. Hussey was in the chair.

Mr. Rigby, who was their Vice-Chairman to-day, was elected a Director on Oct. 8 of the same year as Mr. Hussey, and he had endeared himself to all those he had brought himself in contact with. It was an extraordinary pleasure, said Mr. Cash, to ask these gentlemen to accept the certificates.

"The third Director," said Mr. Cash, "is myself; and I was elected a Director on Jan. 20, 1899."

Mr. HUSSEY said he was very pleased indeed to accept the certificate, which he valued very much indeed, coming as it did from the Co-Partnership Committee. It was very kind of them to think that the Directors should have some recognition of the years they had served the Company. It had been a great pleasure to him to serve the Company for 40 years. Mr. Rigby and he were elected Directors in the same year, and he did not think it was known that they were born in the same year, and that they entered this Company in the same year also. "We are both 86 years of age," said Mr. Hussey. [Prolonged applause.] He did not think there were many gas companies in this country who could boast two Directors still actively engaged like this. He would like to say how much he appreciated this presentation.

Mr. RIGBY also returned thanks for the certificate, saying how pleased he was to be there that night. He came nearly every time to these gatherings and enjoyed them thoroughly.

Mr. HUSSEY then said that he had a very pleasant duty to perform, and that was to present their Chairman with a certificate for serving the Company for 31 years. That was very nearly a record, and he hoped that Mr. Cash would be spared for another nineteen years to make up fifty. He had steered this Company into a very fine position.

Mr. CASH briefly returned thanks for the presentation, saying that he appreciated it very much. Mr. Hussey, he said, had suggested that he might be spared for another nineteen years; but even then he would still be within Mr. Hussey's figure. There was just a possibility that he might come before them in nineteen years' time and tell them of something like the record which his friends had to their credit.

VOTE OF THANKS.

A vote of thanks to the Chairman was passed on the proposition of Mr. G. E. WALKLEY, Chairman of the Co-Partners' representatives on the Co-Partnership Committee.

During the evening refreshments were served, and an entertainment was given by a concert party.

Ministry of Health Inquiry at Coventry.

An inquiry respecting the application of the Coventry Corporation for sanction to borrow £109,895 for the purpose of laying a new high-pressure gas main, conducted by Mr. R. C. Cox, M.Inst.C.E., an Inspector appointed by the Ministry of Health, was held at Coventry on Friday, May 9.

The proposal of the Corporation was to lay a steel main from and to the Foleshill Works, encirling a large area of the city, the work to be carried out in three sections, covering a period of approximately three years. The ring was schemed to supply Kenilworth, leading to the closing of the gas-works acquired there, and also to facilitate supplies to the area recently added to the city by the boundaries extension. The Inspector was informed that the gas-works were established in 1820 by a private undertaking, and were purchased by the Corporation in 1884. At that time the gas sold was 174 million c.ft., and this had increased in 1929 to 2262 million c.ft., and the mileage of mains from 40 to 242. The gas was now manufactured at the Foleshill Works, and distributed by means of a 24-in. cast-iron main with nine district governors tapping into it. Further pressure was regarded as inadvisable upon the main, and it has been found that there was considerable loss of pressure at the terminal points—particularly during the peak periods. As these districts were developing, this loss of pressure would become more obvious. The Corporation had now an area of 121 square miles to cover. The size of the proposed ring main was 15 in. diameter, and the scheme also included the provision of the necessary reducing governors and compressing plant and a supplementary 36-in. cast-iron low-pressure main to bring the gas from the holders to the compressors and to augment the supply to the existing boosters. A tender in open competition for the supply of pipes had been accepted at £22,501, subject to the sanction of the loan, as against the estimated figure of £22,281 10s. 6d.

Mr. *P. N. Langford,* the Corporation Gas Engineer, in reply to the Inspector, said they had gone, in his opinion, as far as they could with the present system of mains, particularly in view of the development that was taking place. He would not like to increase the pressure in the present cast-iron mains, and should there be a breakage the undertaking would be very severely handicapped, as the supply in hand would not last more than an hour. The proposed new main would be laid additional to the present one.

The INSPECTOR: The price of steel may vary considerably during that time.

Mr. *Langford:* I hope it will go down.

The INSPECTOR: Then if we sanction the whole of the loan it would be considerably over your requirements. He suggested confirming the sanctioning of the loan for the first section amounting to £66,176, and the sums for the other sections approved on the revised estimates when they were ready to be proceeded with.

Councillor *H. H. Cheshire,* Chairman of the Gas Committee, expressed strong support of the scheme owing to the present difficulty of maintaining pressure at peak times.

STOCK AND SHARE LIST.

[For Stock Market Report, see earlier pages.]

Issue.	Share.	When ex-Dividend.	Dividends. Prev. Hf. Yr.	Dividends. Last Hf. Yr.	NAME.	Quotations. May 16.	Rise or Fall on Week.	Transactions Lowest and Highest Prices During the Week.
£			% p.a.	% p.a.				
171,978	Stk.	Feb. 6	5	5	Aldershot 5 p.c. max. C. .	73—78	..	..
522,992	,,	,,	4	4	Do. 4 p.c. Pref. . .	70—73	..	..
1,551,868	,,	Apl. 3	7⅞	7⅞	Alliance & Dublin Ord. . .	93—96	..	..
374,000	,,	Jan. 9	4	4	Do. 4 p.c. Deb. . . .	60—63	..	..
522,655	,,	Mar. 6	7	7	Barnet Ord. 7 p.c.	109—112	..	..
300,000	1	Apl. 24	1/4⅛	1/7½	Bombay, Ltd.	16/6—18/6	..	16/9—17/6
174,500	10	Mar. 6	9	9	Bournemouth 5 p.c. . . .	14—15	+½	..
500,050	10	,,	7	7	Do. B 7 p.c. . . .	12½—12⅞	..	..
439,160	10	,,	6	6	Do. Pref. 6 p.c. .	10½—11¼	..	..
50,000	Stk.	Dec. 19	3	3	Do. 3 p.c. Deb. .	55—58	..	..
162,025	,,	,,	4	4	Do. 4 p.c. Deb. .	74—77	..	..
357,900	,,	Mar. 20	7½	7½	Brighton & Hove 6 p.c. Con.	113—116	..	..
871,880	,,	,,	6⅜	6⅜	Do. 5 p.c. Con.	100—103	..	..
1,287,500	,,	Feb. 20	5	5	Bristol 5 p.c. max.	88—89*a*	+½	..
855,000	,,	Apl. 3	7	8	British Ord.	110—115	..	111½—112½
100,000	,,	Dec 19	7	7	Do. 7 p.c. Pref. . . .	115—120	..	..
120,000	,,	,,	4	4	Do. 4 p.c. Red. Deb. . .	69—71	..	..
450 000	,,	,,	5	5	Do. 5 p.c. Red. Deb. . .	92—95	..	93
100,000	,,	Jan. 9	5	5	Cambridge 5 p.c. Deb. . .	94—97	+2	..
100,000	10	Dec. 5	8	6	Cape Town, Ltd . . .	8½—9½	..	8⅝
100,000	10	Apl. 24	4½	4½	Do. 4½ p.c. Pref. . .	6½—7½*	..	..
150,000	Stk.	Dec. 19	4½	4½	Do. 4½ p.c. Deb. . .	71—76	..	73¾—74¾
626,860	,,	Feb. 20	6	6	Cardiff Con. Ord.	96—99	..	..
237,860	,,	Jan. 9	7½	7½	Do. 7½ p.c. Red. Deb. .	98—101	..	..
157,150	,,	Feb. 20	5	6¼	Chester 5 p.c. Ord.	88—93*b*	..	..
98,936	1	May 8	†2/-	†2/-	Colombo, Ltd. Ord. . . .	33/—35/-*	..	..
24,500	1	,,	1/4⅛	1/4⅛	Do. 7 p.c. Pref. . .	1s/6—20/6*	..	..
375,402	1	Apl. 3	1/9⅜	1/9⅜	Colonial Gas Assn. Ld. Ord	20/—22/-	..	..
187,848	1	,,	1/7½	1/7½	Do. 8 p.c. Pref.	19/—21/-	..	..
2,073,280	Stk.	Feb. 20	5	7	Commercial Ord.	90—93	+1	91—92½
475,000	,,	Dec. 19	3	3	Do. 3 p.c. Deb. . .	57—60	..	58—58½
787,560	,,	Feb. 20	7	7	Croydon sliding scale. . .	105—108	..	105½—107
453,100	,,	,,	5	5	Do. max. div. . . .	83—86	..	84—85
542,270	,,	Mar. 6	7	10	Derby Con.	115—125*e*	..	..
55,000	,,	Dec. 19	4	4	Do. Deb.	67—70*e*	..	..
209,000	,,	Mar. 6	5	5	East Hull Ord. 5 p.c. . . .	71—73	..	..
1,002,180	10	Mar. 20	†4	†7	European, Ltd.	13½—14½	..	13¾
18,629,125	Stk.	Feb. 20	5⅝	5⅝	Gas Light & Coke 4 p.c. Ord.	18/9—19/3*f*	—/3	18/10½—19/1½
2,600,000	,,	,,	3½	3½	Do. 3½ p.c. max. . . .	63½—65½	..	64—65
4,157,020	,,	,,	4	4	Do. 4 p.c. Con. Pref. . .	77—80	..	77½—78
5,602,620	,,	Dec. 19	3	3	Do. 3 p.c. Con. Deb. . .	59—62	+1	60½—61½
3,642,770	,,	,,	5	5	Do. 5 p.c. Red. Deb. . .	98—101	..	101
161,480	,,	Feb. 20	10	10	Harrogate Cons. 10 p.c. max.	160—165	..	161
82,500	,,	Mar. 20	7	7	Hastings & St. L. 5 p.c. Conv.	96—101	..	..
258,740	,,	,,	5½	5½	Do. 3½ p.c Conv.	78—83	..	..
70,600	10	Oct. 10	†10	†10	Hongkong & China, Ltd. .	13¾—14¾	..	14¼—14⅞
213,200	Stk.	Mar. 6	6	6	Hornsey Con. 3½ p.c. . . .	90—93	..	..
2,436,594	,,	Nov. 1	20	10	Imperial Continental Cap. .	370—390	—10	360—405
223,130	,,	Feb. 6	3½	3½	Do. 3½ p.c. Red. Deb.	80—85	..	..
235,242	,,	Mar. 20	8½	8½	Lea Bridge 5 p.c. Ord. . .	123—128	+12	124
2,145,907	,,	Feb. 20	6	6	Liverpool 5 p.c. Ord. . . .	91—92*b*	..	..
600,000	,,	Mar. 20	7	7	Do. 7 p.c. Red. Pref..	100—102*b*	..	..
165,786	,,	Feb. 20	9	8	Maidstone 5 p.c. Cap. . .	119—124	..	120—121½
63,480	,,	Dec. 19	3	3	Do. 3 p.c. Deb. . . .	52—55	..	..
75,000	5	Dec. 5	†10	†10	Malta & Mediterranean . .	5½—6	..	..
392,000	—	Apl. 1	5½	5½	Metrop'itan (of Melbourne) 5¼ p.c. Red. Deb. . . .	90—93	..	..
541,920	Stk.	Nov. 21	†9	†6	Montevideo, Ltd.	107—112	..	..
2,061,315	,,	Feb. 20	5	5½	Newcastle & Gateshead Con.	1s/—16/6*d*/*f*	+·/3	..
682,856	,,	,,	4	4	Do. 4 p.c. Pref. . .	70—71*d*	..	..
691,705	,,	Dec. 19	3½	3½	Do. 3½ p.c. Deb. . . .	66⅞—67½*d*	..	..
169,940	,,	Mar. 6	7½	7½	North Middlesex 6 p.c. Con.	109—114	..	..
396,160	,,	Feb. 6	5	5	Northampton 5 p.c. max. .	74—77	..	..
300.000	,,	Apl. 24	9	7	Oriental, Ltd.	108—113	..	..
60,000	5	13 My., '15	—	—	Ottoman	0—½	..	..
205,162	Stk.	Jan. 9	8	8	Plym'th & Stonehouse 5 p.c.	107—110	..	..
424,416	,,	Feb. 20	8	8	Portsm'th Con. Stk. 4 p.c. Std	110—115	..	..
241,446	,,	,,	5	5	Do. 5 p.c. max. . .	78—81	..	..
186,000	100	Dec. 2	4	4	Primitiva 4 p.c. Red. Deb..	92—95	..	..
677,837	Stk.	Jan. 23	4	4	Do. 4 p.c. Red. Deb. 1911	81—84	..	..
371,496	,,	Dec. 19	4	4	Do. 4 p.c. Cons. Deb. . .	81—84	..	..
150,000	10	Apl. 3	6	6	San Paulo 6 p.c. Pref. . .	8½—9	..	..
1,736,968	Stk.	Mar. 20	6½	6½	Sheffield Cons.	103—105*e*	+1	..
95.000	,,	Jan. 9	4	4	Do. 4 p.c. Deb. . . .	76—78*e*	..	..
90 000	10	June 13	‡4	‡4	South African	4—6	..	..
6,709,895	Stk.	Feb. 20	5	7½	South Met. Ord.	102—104	..	102½—103½
500,000	,,	,,	6	6	Do. 6 p.c. Irred. Pf.	107—110	..	..
1,895.445	,,	Jan. 9	3	3	Do. 3 p.c. Deb. . .	58—61	..	59½—61
734,000	,,	Mar. 6	6½	6½	Do. 6½ p.c. Red. Db.	99—101	..	100⅜
91,500	,,	Mar. 20	8½	8½	South Shields Con. . . .	106½—107½*d*	+½	..
1,543,795	,,	Feb. 20	6½	6½	South Suburban Ord. 5 p.c.	100—103	..	..
468,837	,,	Dec. 19	5	5	Do. 5 p.c. Deb.	94—96	..	..
647,740	,,	Feb. 20	5	5	Southampton Ord. 5 p.c. max.	76—79	..	..
121,275	,,	Dec. 19	4	4	Do. 4 p.c. Deb.	72—75	..	..
179,014	,,	Feb. 20	8	8	Sutton Ord.	113—116	..	114½—115½
67,828	,,	Jan. 9	5	5	Do. 5 p.c. Deb. . . .	92—95	..	..
250,000	,,	Mar. 6	7	7	Swansea 7 p.c. Red. Pref. .	98—100	..	..
200,000	,,	Dec. 19	6½	6½	Do. 6½ p.c. Red. Deb. .	99—101	..	..
1,076,490	,,	Mar. 6	6⅝	6⅝	Tottenham District Ord. . .	101—105	..	103⅞—104½
150,000	,,	,,	5½	5½	Do. 5½ p.c. Pref. . .	95—98	..	..
199,005	,,	Dec. 5	4	4	Do. 4 p.c. Deb. . . .	73—76	..	73½—74½
182,380	10	30 Dec., '12	—	—	Tuscan, Ltd.	3⅜—4⅜	..	..
85,701	Stk.	Mar. 20	6	6	Do. 6 p.c. Red. Deb.	75—80	..	77
309,094	,,	Mar. 6	7	7	Uxbridge, Maidenhead, & Wycombe 5 p.c.	94—99	..	..
88,330	,,	,,	5	5	Do. 5 p.c. pref. . .	85—90	..	..
1,180,970	,,	—	—	—	Wandsworth, Wimbledon, and Epsom Cons. . .	108—113	..	110½—111½
200,000	,,	Feb. 20	5	5	Do. 5 p.c. Pref.	85—90	..	..
488,344	,,	Dec. 19	5	5	Do. 5 p.c. Deb.	92—97	..	..

Quotations at:—*a.*—Bristol. *b.*—Liverpool. *c.*—Nottingham. *d.*—Newcastle. *e.*—Sheffield. *f.*—The quotation is per £1 of Stock. * Ex. div. † Paid free of income-tax. ‡ For year.

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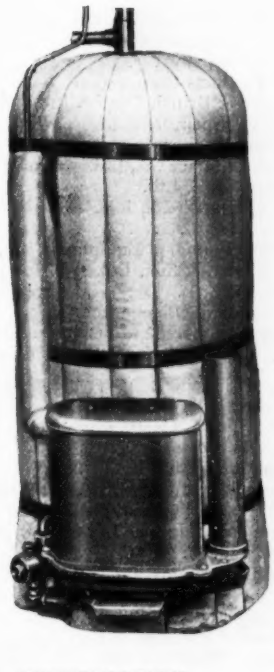

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Guide Bridge Manchester

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Carron Company	—
Celite Products Corporation	—
Cellactite & British Uralite, Ltd.	401
Chapman (Spencer) & Messel, Ltd.	449
Chemical Engineering and Wilton's Patent Furnace Co., Ltd.	Centre X., 449
Clapham Bros., Ltd.	—
Clayton, Son, & Co., Ltd.	459
Cloake, A. G.	—
Coleman Foundry Equipment Co.	—
Cort, Robert, & Son, Ltd.	400
Cowan, W. & B.	Wrapper III.
Crossley Bros. (Bispham)	—
Crossley Brothers, Ltd. (Openshaw).	—
Cutler, Samuel, & Sons, Ltd.	Centre IX.
Dampney, J., & Co., Ltd.	—
Danks, H. & T. (Netherton), Ltd.	449
Davis Gas Stove Co., Ltd.	407
Davison & Partner, Ltd.	—
Dempster, R. & J., Ltd.	Wrapper I.
Dempster, R., & Sons., Ltd.	Centre II., 450
Donkin Co., Ltd. (The Bryan)	Wrapper II.
Drakes, Ltd.	—
Drayton Regulator and Instrument Co., Ltd.	—
Dry Gasholders, Ltd.	—
Duckham, Alexander, & Co., Ltd.	—
Duxbury, Thomas, & Co.	449
Eagle Range and Grate Co.	—
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Falk, Stadelmann, & Co., Ltd.	—
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Glover, George, & Co., Ltd.	393
Glover, Thos., & Co., Ltd.	410
Goodall, Clayton, & Co., Ltd.	455
Grant, David, & Co.	457
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Horseley Bridge and Engineering Company, Ltd.	—
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Kent, George, Ltd.	—
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Kirkham, Hulett, & Chandler, Ltd.	—
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Koppers Coke Oven Co., Ltd.	452
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London Electric Firm, The	—
London Gas Exhibit	—
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Main, R. & A., Ltd.	Centre VII.
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Mewburn, Ellis, & Co.	449
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Thames Bank Iron Co., Ltd.	—
Thompson, J. (Wolverhampton), Ltd	—
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Turner Brothers Asbestos Co., Ltd.	—
Turner, F. (Art Metal) Ltd.	—
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Whessoe Foundry and Eng. Co., Ltd.	—
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Winn, Paul, & Co., Ltd.	405
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Candidates should have attended day courses in an approved Engineering School, and possess a thorough knowledge of Workshop Procedure and also a general knowledge of all the Subjects taken in the Department. The selected candidates should be prepared to teach for at least 10 hours weekly, and to co-ordinate the work of all the gas engineering and supply classes, including the following:—

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Scale of Salary, £580—£25—£725.

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Canvassing disqualifies.

MONTAGU H. COX,
Clerk of the London County Council.

SHIPLEY URBAN DISTRICT COUNCIL.

(GAS DEPARTMENT.)

APPLICATIONS are invited for the position of JUNIOR TECHNICAL ASSISTANT. Candidates must be capable of carrying out routine Laboratory work, and have had Experience in the Control of Vertical Retorts. The post is designated under the Local Government and Other Officers' Superannuation Act, 1922, and the person appointed will be required to furnish a satisfactory Medical Certificate.

Commencing Salary, £208 per Annum.

Applications, stating Age and Experience, accompanied by *copies* of two recent Testimonials, to be sent to the undersigned not later than Monday, June 2, 1930.

H. BARNES,
Clerk of the Council.

Council Offices,
Shipley,
May 15, 1930.

NORTHERN COKE RESEARCH COMMITTEE.

APPLICATIONS are invited for the post of JUNIOR ASSISTANT CHEMIST under the above Committee at Armstrong College. Applicants should have routine experience in the Testing of Coal and Coke and, preferably, some Practical Knowledge of Coke Manufacture. Salary up to £3 per Week, according to qualifications.

Application and testimonials should be sent by June 6 to PROFESSOR BRISCOE, ARMSTRONG COLLEGE, NEWCASTLE UPON-TYNE.

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For particulars, apply PHILLIPS'S, 70, CHANCERY LANE, LONDON, W.C. 2.

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BOROUGH OF MANSFIELD.

TENDERS FOR GAS COAL, LIME, SULPHURIC ACID, AND SURPLUS TAR.

THE Gas Committee of the Mansfield Corporation invite TENDERS for the Supply of SCREENED GAS COAL or COBBLES, LIME, and SULPHURIC ACID, and for the Purchase of SURPLUS TAR from the 1st of July next.

It will be a condition of the Contract that the Standard Rate of Wages and Conditions of Labour prevailing in the district shall be observed.

Particulars may be obtained on application to Mr. J. Gibson, Gas Engineer, Lime Tree Place, Mansfield.

Tenders, sealed and endorsed "Tenders for Gas Coal," "Lime," "Acid," or "Tar," to be delivered to the undersigned on or before Twelve noon on Friday, June 6, 1930.

The Corporation do not bind themselves to accept the lowest or any Tender.

J. S. ROBINSON,
Town Clerk.

May, 1930.

NEWTON-IN-MAKERFIELD URBAN DISTRICT COUNCIL.

TO PIPE FOUNDERS AND OTHERS.

THE above-named Council invite TENDERS for CAST IRON PIPES for Water and Gas MAINS, also for SLUICE VALVES.

PIPES.

220 yds.	1 in.	of 6 in.	Main	coated	outside	only.	
736	"	"	4 "	"	"	"	"
632	"	"	3 "	"	"	"	"
580	"	"	6 "	"	coated	inside	and out.
591	"	"	4 "	"	"	"	"
570	"	"	3 "	"	"	"	"

In each case they must stand the full size of bore given and comply with the British Standard Specification for Cast Iron Spigot and Socket Pipes, "Class B." Alternatively, TENDERS for the same in Steel of Standard Gauge with open Sockets for Lead Joints; to be coated inside and out, jute wrapped and served.

VALVES.

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30—2½ in. Sluice Hydrants—Spindles, &c., as Valves.

The Valves to be of heavy pattern with double sockets and phosphor bronze spindles and faces.

The Council reserve the right to vary the quantities, more or less, and the Pipes must be priced at per lineal yard of laid measure and totalled out.

Prices to include delivery to the Gas-Works Sidings, L.M. & S. Railway Company, Earlestown Station, Lancashire.

The Pipes and Valves must be to the entire satisfaction of Mr. R. T. Surtees, M.I Mech.E., Engineer and Manager, New Gas-Works, Earlestown.

Sealed Tenders, endorsed on the outside "Tender for Pipes," to be Delivered to the undersigned not later than noon on the 26th of May, 1930.

The Council do not bind themselves to accept the lowest or any Tender.

C. COLE,
Clerk to the Council.

Town Hall,
Earlestown,
May 14, 1930.

GLOUCESTER GAS LIGHT COMPANY.

TENDERS FOR GAS COAL.

THE Directors of the above Company invite TENDERS for the Supply of about 30,000 Tons of GAS COAL—SCREENED, UNSCREENED, or NUTS—for the period ending the 31st of July, 1931, in such monthly quantities as may be required by the Company.

Tenders to state the price delivered at the Gas Company's Siding (London, Midland, & Scottish Railway), Hempsted, near Gloucester, or if sent by Water, the price delivered into Carts at the Gas Company's Wharf on the Gloucester and Berkeley Canal.

Further particulars and Forms of Tender may be obtained from the undersigned.

Sealed Tenders, endorsed "Tender for Coal," specifying the description and quality of the Coal, to be addressed to the Chairman, Gas Offices, Eastgate Street, Gloucester, and delivered not later than Wednesday, the 4th day of June, 1930.

The Directors reserve to themselves the right to accept the whole or any portion of any quantity offered, and do not bind themselves to accept the lowest or any Tender.

By order,
T. BERNARD JAMES,
Secretary.

Gas Offices,
Gloucester,
May 12, 1930.

NEWBURY CORPORATION.

(GAS UNDERTAKING.)

TENDERS FOR COAL.

TENDERS are invited by the Newbury Corporation for the supply of:

4500 tons of DERBYSHIRE GAS NUTS, and
4000 tons of SOUTH YORKS GAS NUTS,

suitable for use in Woodall-Duckham Vertical Retorts, delivered during the Twelve Months commencing the 1st of July next.

Forms of Tender can be obtained on application to Mr. W. R. Davey, Gas Engineer, Gas-Works, Newbury.

Sealed Tenders, endorsed "Tenders for Gas Coal," must reach the undersigned not later than the 2nd of June next.

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S. WIDDICOMBE,
Town Clerk.

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Newbury.

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RAPID, LTD., 60, CASTLE STREET, LIVERPOOL.

BONECOURT Small Gas-Fired Boiler, Vertical or Horizontal Type, evaporation approx. 80 lbs. per hour with 80 lbs. Pressure. Sound condition essential.
State lowest price, and equipment included, to the GAS ENGINEER, GAS OFFICES, COLNE ROAD, BRIERFIELD.

WANTED—One 20-Ton Second-Hand TAR STILL. Must be in good condition. Please state Makers' Name, Price, and where it may be inspected.
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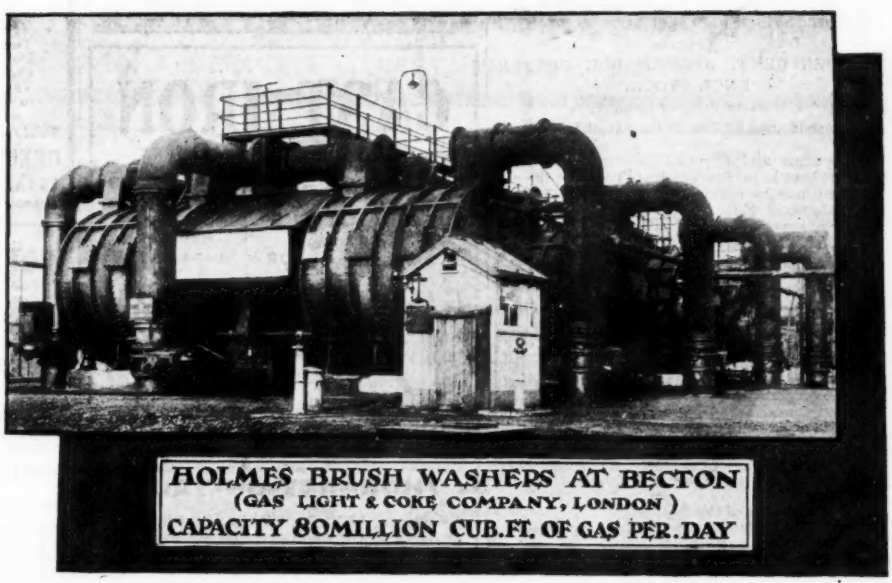

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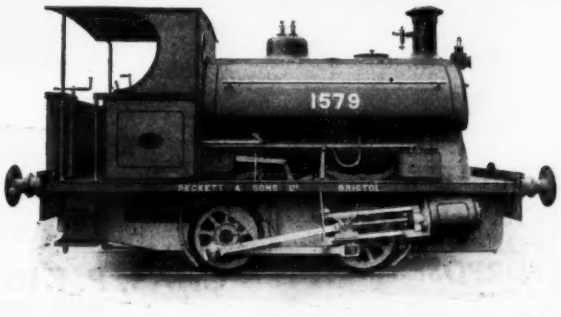

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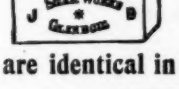
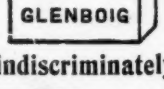
REGISTERED 

TRADE 

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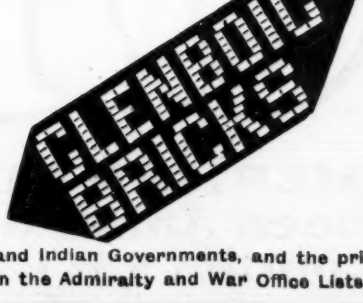

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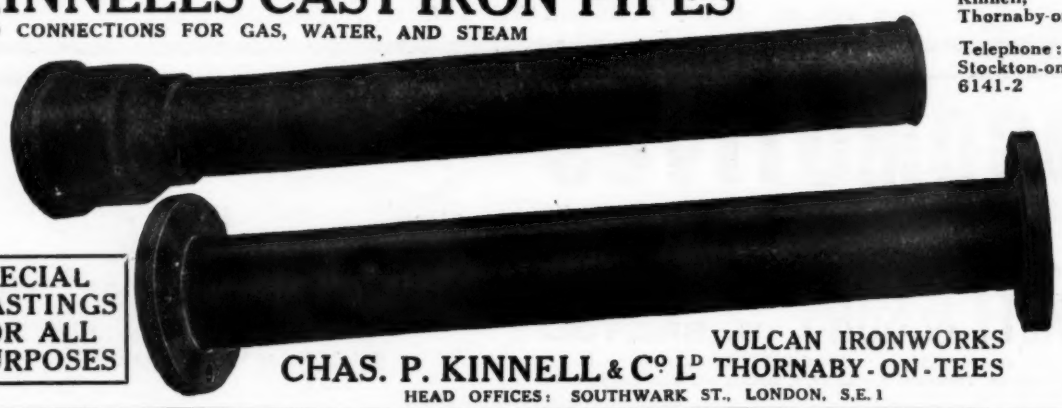

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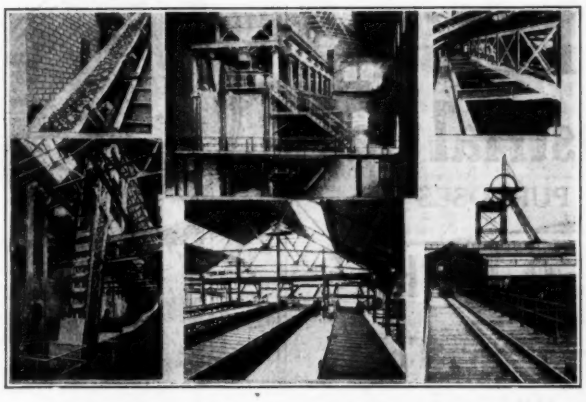

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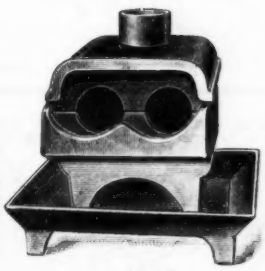

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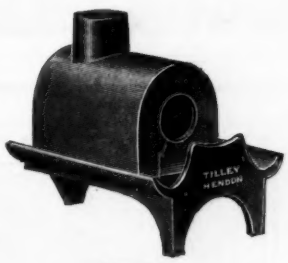

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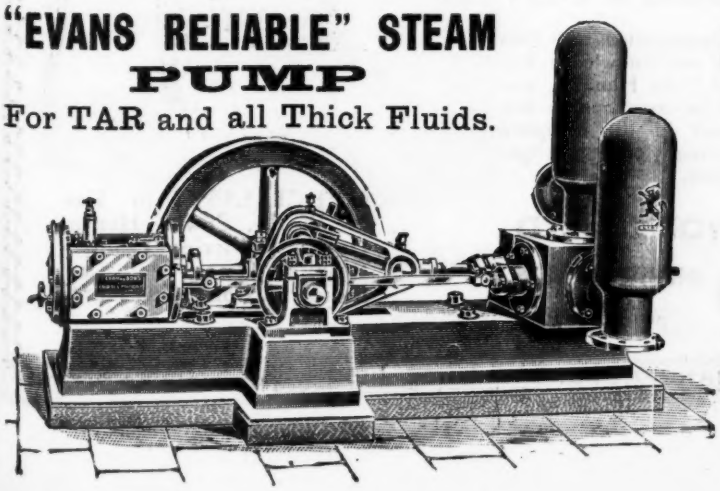

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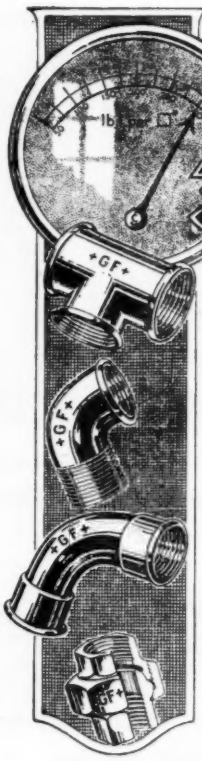

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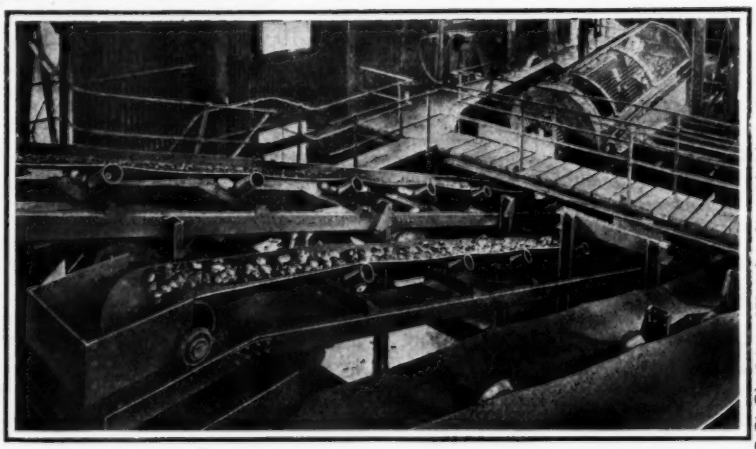

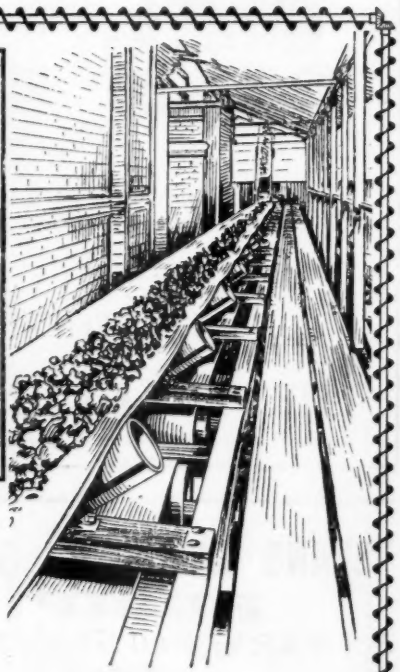

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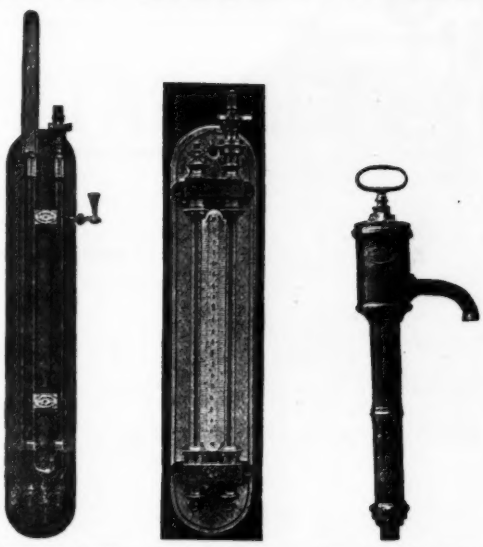

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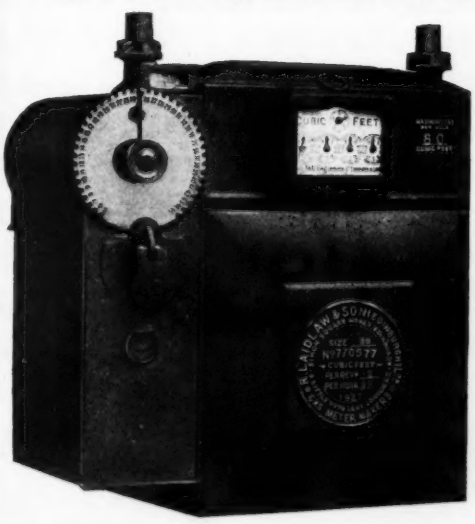

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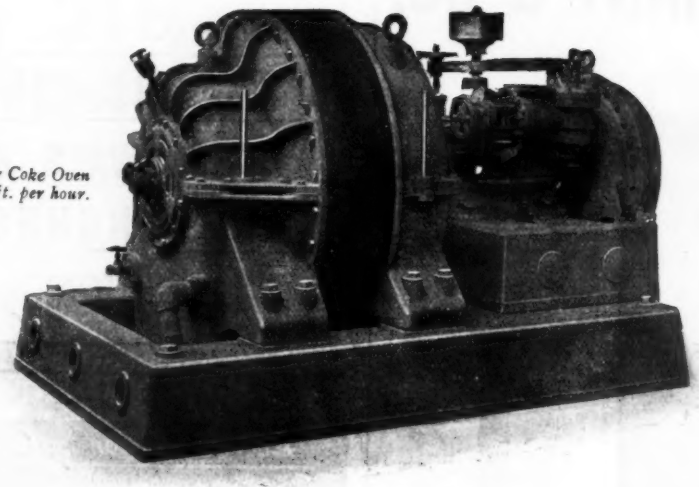

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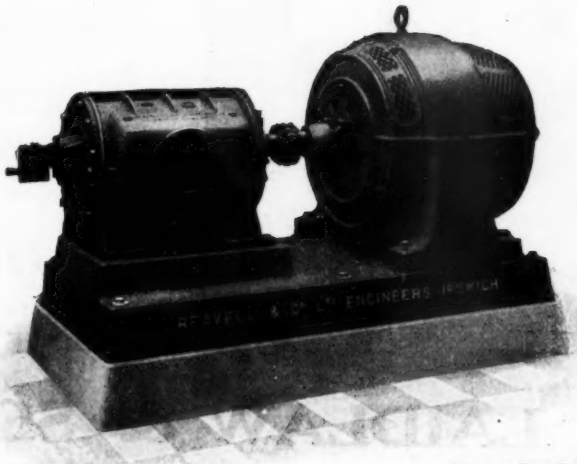

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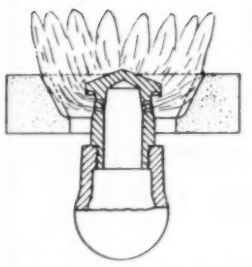

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